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S-II STAGE 1/25 SCALE MODEL BASE REGION THERMAL ENVIRONMENT TEST

VOL. II: Test Data Tabulation, Statistical Analysis Results, and Heating Rate Contours

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16. ABSTRACT

A 1/25 scale model S-II stage base region thermal environment test conducted at George C. Marshall Space Flight Center is presented. Analytical results are included which reflect the effect of engine operating conditions, model scale, turbo-pump exhaust gas injection on base region thermal environment. Comparisons are made between full scale flight data, model test data, and analytical results. The report is prepared in two volumes. Volume I presents the description of the test equipment, test procedures, discussion of the test results, analytical predictions and comparisons with flight data. Volume II contains the tabulation of the test data.

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FOREWORD

This report is submitted by the Rockwell International Corporation, Space Division to the National Aeronautics and Space Administration's George C. Marshall Space Flight Center at Huntsville, Alabama, in accordance with Task Authorization TA-68 issued persuant to NASA Contract NAS7-200.

This report presents the results of the 1/25 scale model S-II Stage base region thermal environment test conducted at MSFC under the direction of the Aero-Astrodynamics Laboratory with test engineering support provided by Space Division.

Analytical results are presented which reflect the effect of engine operating conditions, model scale, turbo-pump exhaust gas injection in the engine nozzle, and co-planar engine gimballing on the S-II base region thermal environment. Comparisons are made between full scale flight data, model test data, and the analytical results.

This report is prepared in two volumes. Volume I presents the description of the test equipment, test procedures, discussion of the test results, analytical predictions and comparisons with flight data. Volume II contains the tabulation of the test data.

The task activities were conducted with Mr. J. A. Sadunas, Task Manager, Dr. E. P. French, and Mr. H. Sexton, the responsible engineers from the Saturn Launch Vehicles Aerothermodynamics group, and Mr. D. C. Seymour as the technical coordinator for the Marshall Space Flight Center.

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1.0 INTRODUCTION

The documentation of the S-II Stage 1/25 Scale model base region thermal environment test program was prepared in two volumes. Volume I contains the description of the test equipment, test procedures, discussion of the test results, analytical predictions and comparisons with flight data. Volume II contains the test data tabulation, statistical analysis results and heat shield constant heating rate contours. This volume supplements the results of Volume I, and it is intended that it be used in conjunction with Volume I.

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2.0 MODEL TEST DATA STATISTICAL ANALYSIS RESULTS

The results of statistical analysis of the test data are presented in this section in tabular form. For each set of test runs, the number of samples, or test runs, the average test value, and the standard deviations were computed for each gage and printed out as shown using the following relationships.

$$\bar{x} = \frac{\sum x}{N} \qquad \text{(Sample Mean)}$$

$$\sigma_x = \left[\left(\overline{x^2} \right) - \left(\bar{x} \right)^2 \right]^{1/2} \qquad \text{(Standard Deviation of Sample)}$$

$$'\sigma_x = C \quad \sigma_x \qquad \text{(Standard Deviation of Universe)}$$

$$'\sigma_{\bar{x}} = \frac{'\sigma_x}{N^{1/2}} \qquad \text{(Standard Deviation of Mean)}$$

where

$$C = \frac{\left(\frac{2}{N}\right)^{1/2} \Gamma\left(\frac{N}{2}\right)}{\Gamma\left(\frac{N-1}{2}\right)} \longrightarrow \left[1 + \frac{1}{4(N-1)}\right]\left(\frac{N}{N-1}\right)^{1/2}$$

A summary of all the test cases run during this test program, and presented in this section, is given in Table 5-1, Volume I.

CASE ---------- RUN SERIES C01, LOG C01

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: PRELIMINARY CHECKOUT FOR COMPARISON WITH PREVIOUS CAL RESULTS

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA						
P007	6	0.025	0.005	0.006	0.002	0.033
P011	5	0.025	0.004	0.005	0.002	0.031
P015	2	0.001	0.000	0.000	0.000	0.002
P017	2	0.004	0.000	0.001	0.001	0.006
Q001	6	1.597	0.323	0.372	0.152	2.052
Q002	5	2.444	0.725	0.861	0.385	3.599
Q003	6	4.167	0.674	0.775	0.317	5.116
Q004	2	5.000	0.030	0.053	0.038	5.113
Q008	2	3.330	0.490	0.866	0.613	5.168
Q020	2	0.006	0.001	0.003	0.002	0.012
Q021	3	0.007	0.002	0.003	0.002	0.013
Q022	4	0.017	0.001	0.001	0.001	0.018
Q023	7	0.053	0.011	0.012	0.005	0.067
Q024	6	0.091	0.006	0.007	0.003	0.100
Q025	8	0.207	0.021	0.023	0.008	0.232

CASE ---------- RUN SERIES C03, LOG C03.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE MODEL OPERATION WITH VARIABLE O/F RATIO

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P007	2	0.025	0.007	0.012	0.008	0.050
P011	4	0.021	0.001	0.002	0.001	0.024
P015	3	0.002	0.001	0.001	0.000	0.003
P017	3	0.002	0.000	0.001	0.000	0.003
Q008	1	2.699	0.0	0.0	0.0	2.699
Q024	4	0.099	0.016	0.020	0.010	0.129
Q025	4	0.210	0.061	0.076	0.038	0.325

CASE ---------- RUN SERIES C03, LOG C03.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE MODEL OPERATION WITH VARIABLE O/F RATIO

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC (P) IN PSIA			
P007	5	0.012	0.002	0.002	0.001	0.015
P011	4	0.002	0.000	0.000	0.000	0.003
P015	5	0.002	0.000	0.000	0.000	0.002
P017	2	0.001	0.000	0.000	0.000	0.001
Q007	2	1.665	0.071	0.126	0.089	1.932
Q008	1	1.467	0.0	0.0	0.0	1.467
Q024	7	0.066	0.019	0.022	0.008	0.091
Q025	8	0.155	0.072	0.080	0.028	0.240

CASE ---------- RUN SERIES C03, LOG C03.3

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE MODEL OPERATION WITH VARIABLE O/F RATIO

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P007	4	0.029	0.004	0.005	0.002	0.036
P011	6	0.034	0.007	0.008	0.003	0.044
P015	7	0.002	0.000	0.001	0.000	0.003
P017	5	0.002	0.000	0.000	0.000	0.002
Q007	5	3.031	0.316	0.375	0.168	3.534
Q008	2	1.894	0.482	0.853	0.603	3.704
Q025	8	0.209	0.037	0.041	0.015	0.253

CASE ---------- RUN SERIES C04, LOG C04.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE FLOW SYMMETRY AT NOZZLE EXITS

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN (PSIA)			
P020	6	3.430	0.145	0.167	0.068	3.635
P021	6	3.380	0.198	0.227	0.093	3.659
P022	6	3.310	0.245	0.282	0.115	3.655
P023	6	3.353	0.285	0.328	0.134	3.754
P024	6	3.303	0.385	0.443	0.181	3.846
P025	6	3.282	0.439	0.505	0.206	3.901
P026	6	3.362	0.186	0.214	0.087	3.624
P027	6	3.551	0.092	0.106	0.043	3.681
P028	6	3.598	0.400	0.460	0.188	4.162
P029	6	3.523	0.236	0.271	0.111	3.855
Q060	5	229.532	8.995	10.685	4.778	243.867
Q061	5	175.839	29.030	34.486	15.422	222.106
Q062	3	146.644	50.643	69.778	40.286	267.503
Q063	4	196.487	39.978	50.010	25.005	271.502
Q064	4	180.436	9.498	11.881	5.941	198.259
Q065	2	182.266	10.651	18.828	13.313	222.206
Q066	2	336.519	10.562	18.672	13.203	376.128
Q067	3	280.615	66.516	91.648	52.913	439.355
Q068	6	186.024	16.102	18.521	7.561	208.707
Q069	5	232.153	47.811	56.795	25.400	308.351

CASE ---------- RUN SERIES C04, LOG C04.3

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE FLOW SYMMETRY AND EFFECT OF NOZZLE ENTRANCE AREA. SPECIAL LARGE DIAMETER PASSAGE TO NOZZLE THROAT ON NOZZLE 1 (RUNS 577 AND 578), NOZZLE 5 (RUNS 579 AND 580), NOZZLE 3 (RUNS 581 AND 582)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC			
P020	6	3.554	0.067	0.078	0.032	3.649
P021	6	3.563	0.113	0.131	0.053	3.723
P022	6	3.523	0.241	0.277	0.113	3.863
P023	6	3.488	0.074	0.085	0.035	3.592
P024	6	3.351	0.130	0.149	0.061	3.534
P025	6	3.357	0.089	0.102	0.042	3.482
P026	6	3.404	0.081	0.093	0.038	3.517
P027	6	3.728	0.047	0.054	0.022	3.795
P028	6	3.587	0.149	0.172	0.070	3.797
P029	6	3.886	0.177	0.203	0.083	4.135
Q060	6	208.777	8.842	10.170	4.152	221.233
Q061	6	198.533	11.033	12.690	5.181	214.075
Q064	6	211.233	25.297	29.097	11.879	246.870
Q065	6	169.112	12.629	14.526	5.930	186.903
Q068	4	220.583	3.141	3.929	1.965	226.477
Q069	5	228.857	24.146	28.684	12.828	267.340

CASE ---------- RUN SERIES C05, LOG C05

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: ATTEMPT TO EVALUATE CAUSE OF THRUST STRUCTURE HEATING. DATA IS QUESTIONABLE DUE TO POSSIBLE NOZZLE ADAPTER LEAKS FORWARD OF THE HEAT SHIELD. 19 INCH DIAMETER DISK INSTALLED AT STATION -5 (0.44 INCH FORWARD OF NOZZLE EXIT PLANE).

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P016	3	0.001	0.000	0.000	0.000	0.002
P017	2	0.001	0.000	0.000	0.000	0.001
P018	1	0.001	0.0	0.0	0.0	0.001
Q001	3	1.698	0.788	1.086	0.627	3.578
Q002	4	2.413	0.841	1.052	0.526	3.991
Q003	4	5.542	0.795	0.995	0.497	7.034
Q004	4	4.755	0.910	1.138	0.569	6.462
Q008	3	4.347	1.236	1.703	0.983	7.296
Q009	3	4.479	0.827	1.139	0.658	6.452
Q011	4	2.725	1.462	1.829	0.914	5.468
Q013	4	2.946	1.364	1.706	0.853	5.504
Q015	4	3.048	0.469	0.586	0.293	3.928
Q016	4	2.442	0.692	0.865	0.433	3.740
Q019	4	2.104	0.482	0.603	0.302	3.009
Q022	4	0.073	0.022	0.028	0.014	0.115
Q023	4	0.013	0.007	0.009	0.005	0.027
Q024	4	0.013	0.007	0.009	0.004	0.026
Q025	2	0.032	0.001	0.002	0.001	0.036
Q031	1	0.017	0.0	0.0	0.0	0.017
Q035	4	0.004	0.001	0.002	0.001	0.006
Q036	2	0.001	0.001	0.001	0.001	0.003

CASE ---------- RUN SERIES 1, LOG 1.1

GIMBAL PATTERN --- NO DEFLECTIONMIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: BASE LINE DATA FOR NOMINAL CONDITION

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	UNIV	MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, P IN PSIA				
P016	5	0.001	0.000	0.000	0.000	0.002
P017	5	0.001	0.000	0.000	0.000	0.002
P018	6	0.001	0.001	0.001	0.000	0.002
Q001	6	1.678	1.051	1.209	0.494	3.158
Q002	5	2.079	0.716	0.851	0.381	3.221
Q003	2	4.418	0.443	0.783	0.554	6.079
Q004	3	4.909	0.728	1.003	0.579	6.646
Q008	6	3.255	0.981	1.129	0.461	4.637
Q009	6	4.047	1.073	1.235	0.504	5.559
Q011	7	2.483	0.295	0.332	0.125	2.859
Q013	6	2.402	0.441	0.508	0.207	3.024
Q015	7	3.252	0.755	0.849	0.321	4.215
Q016	7	3.060	0.440	0.495	0.187	3.621
Q019	7	2.497	0.288	0.324	0.123	2.864
Q022	5	0.016	0.002	0.003	0.001	0.020
Q023	7	0.048	0.016	0.019	0.007	0.069
Q024	7	0.053	0.016	0.018	0.007	0.074
Q025	7	0.126	0.041	0.046	0.017	0.178
Q031	7	0.033	0.006	0.007	0.002	0.040
Q035	7	0.049	0.010	0.011	0.004	0.062
Q036	7	0.055	0.019	0.022	0.008	0.080

CASE ---------- RUN SERIES 1, LOG 1.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TEST FOR ALTITUDE EFFECTS ON BASE ENVIRONMENT. MAXIMUM SIMULATED ALT.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA						
P016	4	0.002	0.000	0.000	0.000	0.002
P017	4	0.002	0.001	0.001	0.000	0.003
P018	3	0.001	0.000	0.000	0.000	0.001
Q001	4	1.234	0.531	0.664	0.332	2.230
Q002	5	2.186	1.061	1.260	0.563	3.876
Q003	4	3.801	1.262	1.579	0.789	6.169
Q004	3	5.296	0.507	0.698	0.403	6.506
Q008	4	2.729	1.567	1.961	0.980	5.670
Q009	3	3.594	2.104	2.899	1.673	8.615
Q011	5	2.504	0.299	0.355	0.159	2.980
Q013	5	2.342	0.367	0.436	0.195	2.927
Q015	5	2.874	0.484	0.575	0.257	3.645
Q016	5	2.834	0.552	0.656	0.293	3.713
Q019	5	2.190	0.362	0.430	0.192	2.766
Q022	5	0.024	0.005	0.006	0.003	0.032
Q023	5	0.037	0.014	0.017	0.008	0.060
Q024	5	0.045	0.018	0.021	0.009	0.073
Q025	4	0.118	0.067	0.084	0.042	0.244
Q031	4	0.030	0.006	0.007	0.004	0.040
Q035	5	0.043	0.010	0.012	0.005	0.059
Q036	5	0.043	0.016	0.019	0.009	0.069

CASE ---------- RUN SERIES 1, LOG 1.3 AND 1.4

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: FOR COMPARISON OF 210 AND 256 INCH HEAT SHIELDS ON THRUST STRUCTURE HTG. TC HEATING RATES AND PRESSURES QUESTIONABLE DUE TO HOT GAS LEAKAGE FROM NOZZLE ADAPTERS. UNEXPLAINED INCREASES OCCURRED ON SOME TC GAGES (USUALLY Q22 AND Q35). 210 INCH HEAT SHIELD & HIGH ALT

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC (P) IN PSIA			
P016	5	0.001	0.000	0.000	0.000	0.002
P017	5	0.001	0.000	0.001	0.000	0.002
P018	4	0.001	0.000	0.000	0.000	0.001
Q001	3	2.938	0.615	0.847	0.489	4.405
Q002	6	2.996	0.561	0.645	0.263	3.786
Q003	5	5.212	1.038	1.233	0.551	6.865
Q004	6	5.853	0.372	0.427	0.174	6.377
Q008	6	4.212	0.838	0.964	0.394	5.393
Q009	5	4.308	0.519	0.617	0.276	5.136
Q011	6	2.672	0.253	0.292	0.119	3.029
Q013	6	2.653	0.306	0.352	0.144	3.084
Q015	6	2.872	0.291	0.334	0.136	3.281
Q016	6	2.641	0.258	0.296	0.121	3.004
Q019	6	1.878	0.323	0.372	0.152	2.333
Q022	5	0.054	0.005	0.006	0.003	0.063
Q023	6	0.037	0.005	0.006	0.003	0.045
Q024	6	0.045	0.009	0.010	0.004	0.057
Q025	6	0.094	0.008	0.009	0.004	0.105
Q031	6	0.027	0.004	0.005	0.002	0.033
Q035	5	0.053	0.006	0.008	0.003	0.063
Q036	5	0.053	0.011	0.013	0.006	0.070

CASE ---------- RUN SERIES 1, LOG 1.5

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE EFFECT OF HIGHER CHAMBER PRESSURE WITH O/F = 5. POSSIBLE NOZZLE ADAPTER LEAKAGE FORWARD OF HEAT SHIELD DURING RUN 190. THRUST STRUCTURE DATA QUESTIONABLE.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P016	10	0.001	0.000	0.000	0.000	0.002
P017	10	0.001	0.000	0.000	0.000	0.001
P018	10	0.001	0.000	0.000	0.000	0.001
Q001	10	0.938	0.114	0.124	0.039	1.056
Q002	10	1.590	0.498	0.539	0.170	2.101
Q003	6	3.968	0.759	0.873	0.356	5.037
Q004	6	4.456	1.010	1.162	0.474	5.879
Q008	10	1.795	0.399	0.432	0.137	2.205
Q009	10	2.409	0.508	0.550	0.174	2.931
Q011	10	2.603	0.236	0.256	0.081	2.845
Q013	10	2.256	0.528	0.572	0.181	2.799
Q014	9	2.615	0.383	0.419	0.140	3.035
Q016	10	2.303	0.207	0.224	0.071	2.515
Q019	10	1.794	0.252	0.273	0.086	2.053
Q022	8	0.010	0.005	0.005	0.002	0.015
Q023	10	0.046	0.015	0.016	0.005	0.061
Q024	10	0.062	0.018	0.019	0.006	0.081
Q025	10	0.074	0.041	0.045	0.014	0.117
Q030	7	0.001	0.003	0.003	0.001	0.005
Q033	7	0.008	0.006	0.007	0.003	0.015
Q034	10	0.039	0.019	0.021	0.007	0.059
Q035	10	0.057	0.013	0.014	0.004	0.070
Q036	10	0.056	0.012	0.013	0.004	0.068

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. Q7H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.050 @ P17,Q51 @ P15.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P001	6	0.024	0.001	0.001	0.000	0.025
P002	6	0.031	0.003	0.004	0.002	0.036
P003	6	0.033	0.002	0.002	0.001	0.035
P005	6	0.032	0.002	0.002	0.001	0.034
P006	6	0.032	0.001	0.002	0.001	0.034
P007	6	0.031	0.002	0.002	0.001	0.034
P008	5	0.024	0.004	0.005	0.002	0.030
P011	5	0.033	0.002	0.003	0.001	0.036
P016	13	0.002	0.001	0.001	0.000	0.003
P017	8	0.002	0.000	0.000	0.000	0.002
P018	13	0.002	0.001	0.001	0.000	0.002
Q001	16	1.600	0.792	0.832	0.208	2.224
Q002	16	2.816	0.833	0.875	0.219	3.472
Q003	12	4.833	1.462	1.562	0.451	6.186
Q004	15	5.645	1.074	1.131	0.292	6.521
Q007	6	1.721	0.235	0.270	0.110	2.052
Q008	14	4.195	1.278	1.351	0.361	5.278
Q009	16	4.826	1.356	1.423	0.356	5.894
Q010	4	3.529	0.285	0.356	0.178	4.063
Q011	15	2.942	0.488	0.514	0.133	3.340
Q013	13	3.123	0.635	0.674	0.187	3.684
Q015	13	3.300	0.660	0.701	0.194	3.884
Q017	6	0.791	0.092	0.106	0.043	0.921
Q019	14	2.542	0.628	0.664	0.177	3.075

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. Q7H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.Q50 @ P17,Q51 @ P15.

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q022	14	0.051	0.036	0.038	0.010	0.081
Q023	14	0.046	0.018	0.019	0.005	0.061
Q024	14	0.057	0.025	0.027	0.007	0.079
Q025	14	0.110	0.050	0.053	0.014	0.153
Q030	6	0.011	0.002	0.002	0.001	0.013
Q031	14	0.025	0.005	0.006	0.001	0.029
Q032	6	0.054	0.010	0.012	0.005	0.069
Q033	5	0.012	0.006	0.007	0.003	0.021
Q034	6	0.035	0.009	0.010	0.004	0.048
Q035	14	0.052	0.020	0.021	0.006	0.069
Q036	14	0.057	0.029	0.030	0.008	0.081
Q037	4	0.115	0.008	0.009	0.005	0.129
Q040	4	0.038	0.004	0.005	0.003	0.046
Q041	5	0.030	0.010	0.012	0.005	0.046
Q050	4	0.114	0.040	0.050	0.025	0.188
Q051	4	0.003	0.003	0.004	0.002	0.009
Q052	6	1.983	0.140	0.161	0.066	2.180
Q07H	2	6.372	0.308	0.545	0.385	7.527
T07H	3	101.136	0.718	0.989	0.571	102.850

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P001	6	0.018	0.001	0.001	0.000	0.019
P002	6	0.025	0.002	0.002	0.001	0.028
P003	6	0.022	0.003	0.004	0.002	0.027
P005	6	0.022	0.002	0.002	0.001	0.024
P006	6	0.023	0.001	0.001	0.001	0.025
P007	6	0.021	0.003	0.003	0.001	0.025
P008	5	0.017	0.002	0.002	0.001	0.020
P011	5	0.023	0.003	0.004	0.002	0.028
P016	17	0.001	0.000	0.000	0.000	0.002
P017	11	0.001	0.000	0.000	0.000	0.001
P018	17	0.000	0.000	0.001	0.000	0.001
Q001	23	1.341	0.755	0.780	0.163	1.829
Q002	22	2.225	1.248	1.293	0.276	3.052
Q003	20	4.347	1.307	1.359	0.304	5.258
Q004	21	4.424	1.109	1.151	0.251	5.178
Q007	6	1.390	0.178	0.204	0.083	1.641
Q008	17	3.170	1.284	1.344	0.326	4.148
Q009	23	3.648	1.453	1.502	0.313	4.587
Q011	19	1.784	0.494	0.514	0.118	2.138
Q013	16	1.996	0.378	0.397	0.099	2.294
Q015	17	2.594	0.725	0.759	0.184	3.146
Q016	16	2.023	0.318	0.334	0.083	2.274
Q017	6	0.583	0.076	0.088	0.036	0.691
Q019	16	1.742	0.447	0.469	0.117	2.094

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q022	16	0.042	0.022	0.023	0.006	0.059
Q023	17	0.034	0.017	0.018	0.004	0.047
Q024	16	0.039	0.025	0.026	0.007	0.058
Q025	16	0.075	0.046	0.049	0.012	0.112
Q030	6	0.009	0.002	0.002	0.001	0.012
Q031	15	0.014	0.006	0.006	0.002	0.019
Q032	6	0.040	0.008	0.010	0.004	0.052
Q033	1	0.000	0.0	0.0	0.0	0.000
Q034	6	0.023	0.002	0.003	0.001	0.026
Q035	17	0.028	0.014	0.014	0.003	0.039
Q036	17	0.030	0.020	0.021	0.005	0.045
Q037	6	0.056	0.008	0.010	0.004	0.068
Q041	6	0.023	0.003	0.003	0.001	0.027
Q052	5	0.939	0.335	0.398	0.178	1.473

CASE ---------- RUN SERIES 2, LOG 2.3

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EVALUATION OF INCREASED MIXTURE RATIO WITH INTERSTAGE SKIRT IN PLACE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	UNIV	MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	3	0.030	0.002	0.002	0.001	0.033
P017	4	0.028	0.003	0.004	0.002	0.034
P018	5	0.030	0.004	0.004	0.002	0.035
Q001	5	1.817	0.465	0.553	0.247	2.559
Q002	5	2.900	0.741	0.881	0.394	4.081
Q003	5	5.339	0.659	0.783	0.350	6.389
Q004	5	5.359	0.776	0.922	0.412	6.596
Q008	5	4.160	0.801	0.952	0.426	5.437
Q009	5	4.652	0.609	0.724	0.324	5.623
Q011	5	2.909	0.336	0.399	0.178	3.444
Q013	5	2.709	0.355	0.421	0.188	3.275
Q015	5	4.001	0.630	0.748	0.335	5.005
Q016	5	3.461	0.330	0.392	0.175	3.987
Q019	5	3.058	0.456	0.542	0.243	3.785
Q022	5	0.319	0.079	0.094	0.042	0.444
Q023	5	1.067	0.216	0.257	0.115	1.412
Q024	5	1.150	0.449	0.533	0.238	1.865
Q025	5	0.384	0.120	0.142	0.064	0.575
Q031	5	0.713	0.205	0.243	0.109	1.040
Q035	5	0.685	0.388	0.461	0.206	1.303
Q036	5	0.895	0.294	0.349	0.156	1.363

CASE ---------- RUN SERIES 2, LOG 2.4

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE THE EFFECT OF INCREASED MIXTURE RATIO WITH LARGE ENGINE DEFLECTIONS

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA						
P018	9	0.000	0.000	0.000	0.000	0.000
Q002	9	4.179	0.243	0.265	0.088	4.444
Q003	9	8.688	0.511	0.559	0.186	9.247
Q004	6	7.398	0.270	0.311	0.127	7.778
Q008	9	13.009	0.793	0.868	0.289	13.876
Q009	9	10.198	0.733	0.802	0.267	11.000
Q010	8	29.835	4.841	5.361	1.895	35.521
Q011	9	7.128	0.558	0.610	0.203	7.738
Q013	9	4.850	0.740	0.810	0.270	5.660
Q014	9	19.685	2.462	2.693	0.898	22.378
Q015	9	9.568	1.421	1.554	0.518	11.122
Q016	9	8.717	0.512	0.560	0.187	9.278
Q017	9	5.885	0.746	0.816	0.272	6.701
Q018	9	5.455	0.472	0.516	0.172	5.971
Q019	9	5.748	0.645	0.706	0.235	6.454
Q023	9	0.048	0.005	0.006	0.002	0.054
Q024	9	0.060	0.008	0.008	0.003	0.068
Q025	9	0.099	0.029	0.031	0.010	0.130
Q030	9	0.010	0.005	0.005	0.002	0.015
Q032	8	0.049	0.008	0.009	0.003	0.059
Q052	7	7.299	0.585	0.658	0.249	8.045

CASE ---------- RUN SERIES 3, LOG 3.1 (Q51 @ P15 FACING OUTBD)

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: PC INDICATES STEADY FLOW, HOWEVER,O/F UNCERTAIN SINCE VENTURI FLO VARIED WITH TIME & DETONATION RUPTURED NOZ. DIAPHRAGMS AT START OF COMBUSTION RNS 255,258,259,261. HEAT-ED COMP Q7H REPLACED Q7. Q50 @ P17 LOC. FACING P16 RNS 258-260, FACING P18 RNS 261-263

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	10	0.003	0.004	0.004	0.001	0.006
P017	5	0.000	0.000	0.000	0.000	0.000
P018	11	0.000	0.000	0.000	0.000	0.000
Q004	10	6.489	0.415	0.449	0.142	6.916
Q010	10	21.302	2.772	3.003	0.950	24.151
Q022	7	0.014	0.003	0.003	0.001	0.017
Q023	4	0.045	0.006	0.008	0.004	0.056
Q024	10	0.064	0.014	0.015	0.005	0.078
Q025	11	0.092	0.016	0.018	0.005	0.108
Q030	11	0.012	0.005	0.006	0.002	0.017
Q031	11	0.025	0.007	0.007	0.002	0.031
Q032	11	0.022	0.006	0.007	0.002	0.028
Q033	11	0.014	0.006	0.007	0.002	0.020
Q034	11	0.017	0.003	0.003	0.001	0.020
Q035	11	0.039	0.008	0.009	0.003	0.047
Q036	11	0.045	0.011	0.012	0.004	0.056
Q037	9	0.061	0.016	0.018	0.006	0.079
Q040	4	0.024	0.010	0.013	0.006	0.043
Q041	6	0.023	0.005	0.006	0.002	0.030
Q050	5	0.082	0.056	0.067	0.030	0.171
Q051	6	0.010	0.008	0.009	0.004	0.022
Q07H	11	2.900	0.618	0.664	0.200	3.501
T07H	11	104.797	3.929	4.224	1.274	108.617

CASE ---------- RUN SERIES 3.1A

GIMBAL PATTERN --- 3CA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 & Q51 ON THE THRUST CONE AT P17 AND P15 LOCATION RESPECTIVELY RUNS 454-458, AT P15 AND P17 RESPECTIVELY RUNS 459-461

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	UNIV	MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	8	0.002	0.000	0.000	0.000	0.002
P018	7	0.001	0.000	0.000	0.000	0.001
Q023	8	0.065	0.008	0.009	0.003	0.074
Q024	8	0.091	0.018	0.020	0.007	0.112
Q025	7	0.179	0.040	0.045	0.017	0.230
Q030	7	0.014	0.008	0.009	0.003	0.024
Q031	7	0.029	0.006	0.007	0.003	0.036
Q032	6	0.031	0.007	0.008	0.003	0.041
Q033	8	0.009	0.003	0.004	0.001	0.013
Q034	8	0.014	0.004	0.004	0.002	0.019
Q036	6	0.047	0.019	0.022	0.009	0.074
Q037	5	0.062	0.010	0.012	0.005	0.078
Q040	5	0.029	0.006	0.007	0.003	0.038
Q041	8	0.019	0.003	0.004	0.001	0.023
Q050	8	0.088	0.026	0.029	0.010	0.119
Q051	8	0.006	0.005	0.005	0.002	0.011
Q07H	7	11.899	1.876	2.110	0.798	14.292
T07H	8	105.651	1.837	2.034	0.719	107.809

CASE ---------- RUN SERIES 3, LOG 3.2A (Q50 @ P17, Q51 @ P15 RNS 470-473)

GIMBAL PATTERN --- 3CA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: ATTEMPT TO DETERMINE RECOVERY TEMPERATURE FOR LARGE DEFLECTIONS. Q7H DATA QUESTIONABLE DUE TO POORLY DEFINED GAGE PROPERTIES AT HIGH TEMP. Q51 DATA WHEN INSTALLED AT P15 WAS POOR, READINGS REPORTED GENERALLY LESS THAN THE NOISE LEVEL. Q50@P15,Q51@P17 RNS 463-469

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	10	0.002	0.000	0.000	0.000	0.002
P018	10	0.001	0.000	0.000	0.000	0.001
Q022	10	0.019	0.006	0.006	0.002	0.025
Q023	11	0.062	0.006	0.007	0.002	0.068
Q024	11	0.091	0.011	0.012	0.004	0.102
Q025	11	0.202	0.015	0.016	0.005	0.216
Q030	11	0.012	0.003	0.003	0.001	0.015
Q031	11	0.021	0.007	0.007	0.002	0.027
Q032	11	0.035	0.005	0.005	0.002	0.040
Q033	11	0.005	0.003	0.003	0.001	0.008
Q034	11	0.012	0.002	0.002	0.001	0.014
Q036	11	0.044	0.017	0.018	0.006	0.061
Q037	11	0.048	0.022	0.024	0.007	0.070
Q040	10	0.015	0.009	0.010	0.003	0.025
Q041	11	0.022	0.011	0.011	0.003	0.033
Q050	11	0.075	0.017	0.018	0.005	0.091
Q051	9	0.012	0.007	0.007	0.002	0.019
Q07H	11	12.990	1.517	1.631	0.492	14.465
T07H	11	953.919	164.830	177.197	53.427	1114.200

CASE ---------- RUN SERIES 3, LOG 3.3

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 & 51 MOUNTED ON TC. THIS SERIES CONSISTS OF 15 RUNS, 8 NOT REPORTED DUE TO POOR COMBUSTOR PERFORMANCE. Q50 AND Q51 AT P17 AND P15 RESPECTIVELY.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P016	7	0.003	0.001	0.001	0.000	0.004
P018	5	0.002	0.002	0.002	0.001	0.005
Q004	8	7.220	0.350	0.387	0.137	7.631
Q010	8	27.674	1.850	2.049	0.724	29.847
Q022	8	0.012	0.005	0.005	0.002	0.017
Q023	6	0.046	0.006	0.007	0.003	0.055
Q024	8	0.064	0.017	0.019	0.007	0.084
Q025	8	0.117	0.021	0.023	0.008	0.142
Q030	7	0.006	0.001	0.002	0.001	0.008
Q031	7	0.024	0.004	0.005	0.002	0.030
Q032	8	0.052	0.008	0.009	0.003	0.061
Q033	8	0.014	0.004	0.004	0.002	0.019
Q034	8	0.029	0.007	0.008	0.003	0.038
Q035	8	0.060	0.008	0.009	0.003	0.070
Q036	8	0.062	0.009	0.009	0.003	0.072
Q037	8	0.084	0.007	0.008	0.003	0.093
Q040	8	0.028	0.008	0.009	0.003	0.038
Q041	8	0.036	0.036	0.040	0.014	0.078
Q050	5	0.198	0.068	0.080	0.036	0.305
Q051	5	0.021	0.031	0.037	0.017	0.071
Q07H	7	4.157	1.283	1.444	0.546	5.795
T07H	8	110.775	20.579	22.786	8.056	134.943

CASE ---------- RUN SERIES 3, LOGS 3.3A AND 3.4A

GIMBAL PATTERN --- 3CA MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: HEATED Q7H REPLACES Q7. ROD GAGES Q50 AND Q51 INSTALLED ON THRUST CONE. T7H TEMPS TABULATED ARE PRETEST GOAL,NO TEST VALUES RECORDED. Q50 & 51 POSN NOT SPECIFIED BUT APPEAR TO BE AT P17 AND P15 LOCATIONS RESPECTIVELY. DIFF BTWN 3.3A & 3.4A IS THE T7H TEMP DESRD.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	3	0.001	0.000	0.000	0.000	0.001
P018	4	0.001	0.000	0.000	0.000	0.002
Q022	5	0.015	0.010	0.012	0.005	0.031
Q023	5	0.067	0.008	0.010	0.004	0.080
Q024	5	0.100	0.005	0.007	0.003	0.108
Q025	5	0.231	0.017	0.021	0.009	0.259
Q030	5	0.014	0.005	0.006	0.003	0.022
Q031	5	0.018	0.004	0.004	0.002	0.023
Q032	5	0.044	0.004	0.005	0.002	0.051
Q033	5	0.009	0.003	0.004	0.002	0.013
Q034	5	0.014	0.002	0.002	0.001	0.018
Q036	5	0.048	0.024	0.029	0.013	0.087
Q037	5	0.056	0.004	0.005	0.002	0.063
Q040	5	0.033	0.002	0.003	0.001	0.037
Q041	5	0.016	0.002	0.003	0.001	0.020
Q050	5	0.129	0.023	0.027	0.012	0.165
Q051	5	0.005	0.004	0.004	0.002	0.011
Q07H	4	9.794	2.661	3.328	1.664	14.786
T07H	4	869.871	82.021	102.602	51.301	1023.773

CASE ---------- RUN SERIES 3, LOG 3.4

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 AND Q51 ON THRUST STRUCTURE APPEAR TO BE LOCATED AT P17 AND P15 LOCATIONS RESPECTIVELY.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P016	5	0.004	0.000	0.001	0.000	0.004
P018	4	0.003	0.001	0.001	0.001	0.005
Q004	3	5.972	0.105	0.144	0.083	6.222
Q010	3	30.168	2.197	3.027	1.748	35.410
Q022	5	0.016	0.003	0.003	0.001	0.020
Q023	5	0.056	0.005	0.006	0.003	0.064
Q024	5	0.073	0.014	0.017	0.008	0.096
Q025	5	0.142	0.009	0.011	0.005	0.156
Q030	5	0.008	0.002	0.003	0.001	0.012
Q031	5	0.029	0.003	0.004	0.002	0.034
Q032	5	0.057	0.004	0.005	0.002	0.063
Q033	5	0.013	0.004	0.005	0.002	0.019
Q034	4	0.029	0.004	0.005	0.002	0.036
Q035	4	0.063	0.005	0.006	0.003	0.072
Q036	5	0.075	0.007	0.008	0.003	0.086
Q037	5	0.098	0.014	0.017	0.008	0.121
Q040	5	0.036	0.009	0.010	0.005	0.049
Q041	4	0.027	0.010	0.013	0.007	0.047
Q050	5	0.182	0.011	0.013	0.006	0.199
Q051	4	0.002	0.004	0.005	0.002	0.010
Q07H	4	2.439	0.589	0.737	0.368	3.544
T07H	4	542.828	168.201	210.407	105.203	858.438

CASE ---------- RUN SERIES 4, LOG 4.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DEFINE ENVIRONMENT ON THE EXTERIOR OF AN INOPERATIVE ENGINE NO 5

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P018	3	0.000	0.000	0.000	0.000	0.000
QOG2	3	0.786	0.243	0.335	0.193	1.366
QOG4	3	0.843	0.228	0.314	0.181	1.387
QOG5	1	0.730	0.0	0.0	0.0	0.730
QOG6	1	0.730	0.0	0.0	0.0	0.730
QOG7	3	0.582	0.067	0.093	0.054	0.742
QOG8	2	0.592	0.028	0.049	0.035	0.696
QOH1	2	2.367	0.043	0.077	0.054	2.530
QOH3	3	1.055	0.061	0.084	0.048	1.200
QOH4	3	0.805	0.136	0.187	0.108	1.129
QOH5	3	0.881	0.056	0.078	0.045	1.016
QOH7	3	0.728	0.025	0.034	0.020	0.787
QOH8	3	0.754	0.038	0.052	0.030	0.845
QOJ1	3	1.837	0.138	0.190	0.110	2.167
QOJ6	3	0.651	0.073	0.100	0.058	0.824
QOJ7	3	0.380	0.036	0.050	0.029	0.467
QOJ8	3	0.751	0.068	0.094	0.054	0.915
QOJ9	3	1.116	0.340	0.468	0.270	1.927
QON1	1	0.568	0.0	0.0	0.0	0.568
QON2	2	0.797	0.015	0.026	0.018	0.851
QON3	2	5.912	1.864	3.296	2.330	12.903
QON5	2	7.345	1.867	3.301	2.334	14.348

CASE ---------- RUN SERIES 4, LOG 4.2

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DEFINE ENVIRONMENT OF INOPERATIVE ENGINE NO 3

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P018	4	0.000	0.000	0.000	0.000	0.000
Q0G2	4	0.532	0.237	0.296	0.148	0.976
Q0G4	3	0.432	0.072	0.100	0.058	0.604
Q0G5	4	0.564	0.081	0.101	0.050	0.715
Q0G6	4	0.594	0.166	0.207	0.104	0.905
Q0G7	4	0.506	0.032	0.040	0.020	0.567
Q0G9	2	0.431	0.022	0.039	0.028	0.514
Q0H1	4	0.614	0.257	0.321	0.160	1.095
Q0H3	4	0.639	0.142	0.177	0.089	0.905
Q0H4	4	0.589	0.411	0.514	0.257	1.360
Q0H5	3	0.885	0.065	0.089	0.051	1.039
Q0H6	1	0.941	0.0	0.0	0.0	0.941
Q0H7	3	0.968	0.043	0.060	0.034	1.071
Q0H8	3	1.418	0.066	0.091	0.052	1.576
Q0J1	4	0.608	0.101	0.127	0.063	0.798
Q0J6	4	0.716	0.069	0.086	0.043	0.844
Q0J7	4	0.677	0.350	0.438	0.219	1.333
Q0J8	4	0.511	0.306	0.383	0.191	1.085
Q0J9	4	1.376	0.340	0.426	0.213	2.015
Q0N1	2	0.000	0.000	0.000	0.000	0.000
Q0N2	4	0.212	0.018	0.023	0.011	0.246
Q0N3	3	0.109	0.122	0.168	0.097	0.400
Q0N5	4	0.246	0.150	0.187	0.094	0.528

CASE ---------- RUN SERIES 4, LOG 4.2A

GIMBAL PATTERN --- 2A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NO 2 ENGINE OUT WITH NOZZLE INSTRUMENTED. LOCATION OF EXTERIOR GAGE ROW M NOT DEFINED IN DATA FOR THIS RUN. FULL SCALE DISTANCES FWD OF NOZZLE EXIT PLANE ARE QM1 (1 INCH),QM6 (16),QM7 (19) AND QM8 (22)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC				
Q0M1	3	0.901	0.160	0.220	0.127	1.283
Q0M6	3	0.559	0.095	0.131	0.075	0.785
Q0M7	3	0.487	0.058	0.080	0.046	0.626
Q0M8	3	0.954	0.158	0.217	0.126	1.330
Q001	2	3.401	0.645	1.141	0.807	5.821
Q002	1	3.372	0.0	0.0	0.0	3.372
Q003	3	2.945	0.421	0.580	0.335	3.949
Q004	2	5.145	0.666	1.177	0.832	7.641
Q008	3	2.211	0.276	0.381	0.220	2.870
Q009	3	2.590	0.280	0.386	0.223	3.259
Q010	3	2.112	0.328	0.452	0.261	2.895
Q011	2	1.419	0.373	0.660	0.466	2.818
Q013	3	2.393	0.136	0.187	0.108	2.718
Q014	3	1.064	0.033	0.045	0.026	1.142
Q015	3	2.790	0.308	0.424	0.245	3.525
Q016	3	1.542	0.104	0.143	0.083	1.790
Q017	3	1.729	0.215	0.296	0.171	2.242
Q019	3	1.643	0.480	0.661	0.381	2.788
Q022	3	0.006	0.004	0.006	0.003	0.016
Q023	3	0.043	0.026	0.036	0.021	0.106
Q024	3	0.067	0.033	0.046	0.026	0.146
Q025	3	0.131	0.052	0.072	0.041	0.255
Q031	3	0.017	0.003	0.005	0.003	0.025
Q052	3	3.837	0.130	0.179	0.104	4.148

CASE ---------- RUN SERIES 4, LOG 4.3

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF BASE ENVIRONMENT WITH A SINGLE 7.5 DEG ACTUATOR FAILURE INBOARD ON ENGINE NO 4.
(RUNS 234 AND 234A LABLED THE SAME)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P018	3	0.000	0.000	0.000	0.000	0.000
Q001	2	5.933	0.610	1.079	0.763	8.221
Q002	6	4.179	0.458	0.527	0.215	4.824
Q003	6	7.830	0.425	0.489	0.200	8.429
Q004	6	5.986	0.237	0.273	0.111	6.320
Q008	6	10.977	1.085	1.248	0.510	12.505
Q009	6	8.554	0.534	0.614	0.251	9.306
Q010	6	27.949	4.081	4.694	1.916	33.698
Q011	5	6.888	0.952	1.131	0.506	8.405
Q013	5	4.601	0.589	0.700	0.313	5.540
Q014	6	16.345	1.798	2.068	0.844	18.878
Q015	5	8.726	1.311	1.558	0.697	10.815
Q016	6	8.263	0.793	0.912	0.372	9.379
Q017	6	4.449	0.466	0.536	0.219	5.105
Q018	5	4.703	0.453	0.538	0.241	5.425
Q019	6	4.407	0.459	0.528	0.216	5.054
Q022	2	0.007	0.002	0.003	0.002	0.013
Q023	4	0.036	0.001	0.001	0.001	0.038
Q024	6	0.039	0.003	0.003	0.001	0.043
Q025	4	0.057	0.016	0.020	0.010	0.087
Q030	2	0.006	0.006	0.011	0.008	0.029
Q032	4	0.036	0.006	0.008	0.004	0.048
Q052	4	6.144	0.451	0.565	0.282	6.991

CASE ---------- RUN SERIES 4, LOG 4.4

GIMBAL PATTERN --- 4A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: DUAL ACTUATOR FAILURE ON ENGINE NO 3 AT 7.5 DEG WITH 210 INCH HEAT SHIELD . NOTE THAT THIS DEFLECTION PATTERN DOES NOT GIVE MAXIMUM HEATING FOR DUAL 7.5 DEG FAIL.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	4	0.001	0.000	0.000	0.000	0.002
P017	4	0.000	0.000	0.000	0.000	0.000
P018	4	0.000	0.000	0.000	0.000	0.000
Q001	4	4.928	1.259	1.575	0.787	7.290
Q003	4	3.239	0.077	0.096	0.048	3.383
Q004	4	2.612	0.270	0.338	0.169	3.119
Q008	4	3.549	0.267	0.334	0.167	4.050
Q010	4	2.941	0.324	0.405	0.203	3.549
Q011	4	2.156	0.060	0.075	0.038	2.269
Q013	4	3.300	0.167	0.209	0.105	3.615
Q014	4	1.592	0.185	0.231	0.115	1.938
Q016	4	1.421	0.067	0.083	0.042	1.546
Q021	4	0.002	0.003	0.004	0.002	0.007
Q023	4	0.083	0.012	0.015	0.007	0.105
Q024	4	0.108	0.007	0.008	0.004	0.120
Q025	4	0.185	0.027	0.034	0.017	0.236
Q030	3	0.007	0.002	0.003	0.001	0.011
Q034	4	0.036	0.008	0.010	0.005	0.050
Q035	3	0.042	0.010	0.014	0.008	0.067
Q036	4	0.075	0.024	0.030	0.015	0.120
Q037	4	0.071	0.023	0.028	0.014	0.114
Q043	4	0.102	0.030	0.038	0.019	0.158

CASE ---------- RUN SERIES 4, LOG 4.5.1A

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESIGATION OF OUTBOARD ENGINE OUT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST STRUCTURE COMPLIANCE. ALSO SEE LOG 4.5.1B FOR ADDITIONAL DATA . NON FLOWING NOZZLE AT POSITION NO 3.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q001	4	4.180	0.428	0.535	0.267	4.982
Q002	3	5.470	0.469	0.646	0.373	6.588
Q003	4	6.127	0.464	0.581	0.290	6.999
Q004	5	4.912	0.630	0.748	0.334	5.915
Q008	4	8.382	0.614	0.768	0.384	9.535
Q009	5	9.286	0.837	0.995	0.445	10.620
Q010	5	4.176	0.611	0.726	0.325	5.150
Q011	5	1.504	0.291	0.346	0.155	1.968
Q013	5	3.368	0.567	0.673	0.301	4.271
Q014	4	3.190	0.462	0.578	0.289	4.057
Q015	1	6.150	0.0	0.0	0.0	6.150
Q016	5	2.592	0.204	0.243	0.109	2.918
Q017	5	2.694	0.182	0.216	0.096	2.983
Q023	5	0.102	0.011	0.013	0.006	0.120
Q025	5	0.261	0.022	0.026	0.012	0.296
Q031	4	0.054	0.008	0.010	0.005	0.070
Q032	5	0.083	0.007	0.008	0.003	0.093
Q044	5	0.155	0.012	0.014	0.006	0.174
Q053	5	0.077	0.008	0.010	0.004	0.090
Q054	5	1.772	0.102	0.121	0.054	1.935
Q055	5	0.300	0.032	0.038	0.017	0.350
Q24T	5	0.129	0.008	0.009	0.004	0.141

CASE ---------- RUN SERIES 4, LOG 4.5.1B

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF OUTBOARD ENGINE OUT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST STRUCTURE COMPLIANCE. ALSO SEE LOG 4.5.1A DATA. NON FLOWING NOZZLE AT POSITION NO 3.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q006	6	4.817	0.315	0.362	0.148	5.260
Q007	6	3.600	0.237	0.273	0.111	3.934
Q015	6	5.408	1.273	1.464	0.598	7.201
Q019	6	6.252	0.424	0.488	0.199	6.849
Q020	4	0.001	0.000	0.001	0.000	0.002
Q021	2	0.007	0.003	0.006	0.004	0.021
Q022	6	0.026	0.005	0.005	0.002	0.032
Q030	6	0.029	0.007	0.008	0.003	0.039
Q033	6	0.031	0.006	0.007	0.003	0.040
Q034	6	0.054	0.007	0.008	0.003	0.064
Q035	6	0.136	0.002	0.002	0.001	0.139
Q036	5	0.112	0.005	0.006	0.003	0.120
Q037	5	0.130	0.007	0.008	0.003	0.140
Q038	4	0.002	0.002	0.002	0.001	0.005
Q040	6	0.025	0.006	0.007	0.003	0.034
Q041	6	0.022	0.004	0.004	0.002	0.027
Q043	5	0.011	0.001	0.001	0.001	0.013
Q052	6	2.962	0.443	0.510	0.208	3.586
Q110	2	0.717	0.193	0.341	0.241	1.441
Q111	2	0.360	0.0	0.0	0.0	0.360

CASE ---------- RUN SERIES 4, LOG 4.5.2A

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: OUTBOARD ENGINE OUT ENVIRONMENT WITH DEFLECTION CASES WHICH DO NOT INCLUDE THRUST STRUCTURE COMPLIANCE. SEE LOG 4.5.2B FOR ADDITIONAL DATA. NON-FLOWING NOZZLE AT POSITION NO. 3.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q001	7	3.074	0.425	0.478	0.181	3.617
Q002	7	4.810	0.662	0.745	0.282	5.655
Q003	7	5.484	0.613	0.689	0.261	6.266
Q004	7	4.836	0.439	0.494	0.187	5.395
Q006	7	4.581	0.260	0.292	0.110	4.913
Q007	6	3.775	0.217	0.250	0.102	4.081
Q008	7	7.536	0.911	1.025	0.387	8.698
Q009	7	8.241	0.710	0.798	0.302	9.147
Q010	7	3.233	0.379	0.426	0.161	3.716
Q011	7	1.119	0.490	0.551	0.208	1.743
Q013	7	2.797	1.018	1.145	0.433	4.096
Q014	7	2.179	0.497	0.559	0.211	2.812
Q015	7	4.540	1.315	1.480	0.559	6.218
Q016	7	1.961	0.388	0.437	0.165	2.457
Q017	7	2.296	0.136	0.153	0.058	2.469
Q019	7	6.069	0.575	0.647	0.245	6.802
Q024	5	1.976	0.201	0.239	0.107	2.296
Q025	7	0.881	0.059	0.066	0.025	0.957
Q046	6	0.390	0.072	0.083	0.034	0.492
Q052	7	2.394	0.359	0.404	0.153	2.853
Q054	7	0.964	0.113	0.127	0.048	1.109
Q110	4	1.267	0.174	0.217	0.109	1.593
Q111A	2	1.510	0.110	0.194	0.138	1.923

CASE ---------- RUN SERIES 4, LOG 4.5.2B

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: OUTBOARD ENGINE OUT ENVIRONMENT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST SRUCTURE COMPLIANCE. SEE LOG 4.5.2A FOR ADDITIONAL DATA. INTERSTAGE GAGES 26-29 AT 29.2 DEGREES. NON-FLOWING NOZZLE IN POSITION NO 3.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q020	6	0.020	0.017	0.020	0.008	0.044
Q022	6	0.144	0.033	0.038	0.016	0.191
Q023	4	2.117	0.398	0.497	0.249	2.864
Q026	3	0.232	0.091	0.125	0.072	0.449
Q027	4	1.388	0.456	0.570	0.285	2.243
Q028	5	1.714	0.517	0.614	0.275	2.538
Q029	6	0.307	0.056	0.064	0.026	0.385
Q030	6	0.078	0.022	0.025	0.010	0.109
Q031	6	1.270	0.121	0.139	0.057	1.440
Q032	5	0.993	0.288	0.342	0.153	1.452
Q035	6	0.473	0.047	0.054	0.022	0.540
Q036	6	1.325	0.175	0.202	0.082	1.572
Q037	6	1.858	0.350	0.403	0.164	2.351
Q038	6	0.224	0.060	0.069	0.028	0.308
Q040	6	0.885	0.110	0.127	0.052	1.041
Q043	5	0.123	0.020	0.024	0.011	0.155
Q044	6	0.243	0.074	0.085	0.035	0.347
Q120	2	0.529	0.015	0.026	0.018	0.584
Q121	2	1.655	0.065	0.115	0.081	1.899
Q122	2	0.685	0.050	0.088	0.063	0.873

CASE ---------- RUN SERIES 5, LOG 5.1

GIMBAL PATTERN --- 5 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF SINGLE ACTUATOR FAILURE EFFECTS. ACTUATOR FAILED AT 5 DEGREES INBOARD.
NOTE CASES 216, 216A AND 218, 218A

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P016	10	0.001	0.001	0.001	0.000	0.002
P017	10	0.000	0.000	0.000	0.000	0.000
P018	11	0.000	0.000	0.000	0.000	0.000
Q001	9	5.634	0.677	0.740	0.247	6.374
Q002	10	6.176	0.724	0.784	0.248	6.920
Q003	10	6.208	0.603	0.653	0.207	6.827
Q004	1	7.217	0.0	0.0	0.0	7.217
Q008	10	9.829	0.619	0.671	0.212	10.466
Q009	10	8.625	0.543	0.589	0.186	9.183
Q010	1	3.498	0.0	0.0	0.0	3.498
Q011	10	3.335	0.556	0.603	0.191	3.907
Q013	10	6.185	1.246	1.350	0.427	7.466
Q014	1	9.314	0.0	0.0	0.0	9.314
Q015	10	7.124	0.638	0.691	0.218	7.779
Q016	10	3.568	0.747	0.809	0.256	4.336
Q017	1	3.770	0.0	0.0	0.0	3.770
Q018	1	4.425	0.0	0.0	0.0	4.425
Q019	11	4.550	0.299	0.322	0.097	4.841
Q022	11	0.011	0.010	0.011	0.003	0.021
Q023	11	0.038	0.007	0.007	0.002	0.045
Q024	10	0.039	0.014	0.015	0.005	0.053
Q025	11	0.061	0.013	0.014	0.004	0.074
Q034	9	0.034	0.018	0.020	0.007	0.054
Q035	8	0.034	0.004	0.004	0.001	0.039

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 5, LOG 5.1

GIMBAL PATTERN --- 5 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF SINGLE ACTUATOR FAILURE EFFECTS. ACTUATOR FAILED AT 5 DEGREES INBOARD.
NOTE CASES 216, 216A AND 218, 218A

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q036	11	0.031	0.004	0.004	0.001	0.035

CASE ---------- RUN SERIES 5, LOG 5.2

GIMBAL PATTERN --- 6 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO INVESTIGATE THE EFFECTS OF SINGLE ACTUATOR FAILURE INBOARD. ACTUATOR FAILED AT 3 DEGREES.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA						
P016	8	0.001	0.000	0.000	0.000	0.002
P017	9	0.000	0.000	0.000	0.000	0.000
P018	10	0.000	0.000	0.000	0.000	0.000
Q001	10	4.498	0.902	0.977	0.309	5.425
Q002	10	6.191	1.256	1.361	0.430	7.482
Q003	7	7.522	1.856	2.088	0.789	9.889
Q004	8	7.933	0.799	0.884	0.313	8.871
Q008	9	10.560	0.998	1.091	0.364	11.652
Q009	10	9.062	1.134	1.229	0.388	10.228
Q010	7	3.174	0.527	0.593	0.224	3.847
Q011	7	1.918	0.212	0.239	0.090	2.189
Q013	7	3.872	0.495	0.557	0.210	4.503
Q014	4	2.287	0.777	0.972	0.486	3.744
Q015	10	4.466	0.753	0.816	0.258	5.240
Q016	10	2.457	0.321	0.348	0.110	2.787
Q017	4	3.456	0.218	0.273	0.137	3.865
Q018	5	2.680	0.460	0.546	0.244	3.413
Q019	10	2.582	0.781	0.846	0.268	3.385
Q022	10	0.013	0.010	0.011	0.003	0.023
Q023	10	0.049	0.017	0.019	0.006	0.066
Q024	5	0.061	0.018	0.021	0.009	0.089
Q025	10	0.100	0.024	0.026	0.008	0.125
Q034	4	0.035	0.015	0.019	0.009	0.063
Q035	3	0.040	0.003	0.004	0.002	0.047

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 5, LOG 5.2

GIMBAL PATTERN --- 6 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO INVESTIGATE THE EFFECTS OF SINGLE ACTUATOR FAILURE INBOARD. ACTUATOR FAILED AT 3 DEGREES.

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q036	10	0.038	0.006	0.006	0.002	0.044

CASE ---------- RUN SERIES 6, LOG 6.1

GIMBAL PATTERN --- 4A
NOMINAL PC ------- 632.0 PSIA
MIXTURE RATIO ---- 5.00
INTERSTAGE ------- OFF

REMARKS: INSTRUMENTED FLOWING NOZZLE INSTALLED WITH QN2 OPPOSITE ENGINE NO 3 TO EVALUATE HEATING OF NOZZLE LIP WITH DUAL 7.5 DEG ACTUATOR FAILURE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
N001	5	4.121	0.650	0.772	0.345	5.156
N002	10	58.946	5.107	5.533	1.750	64.195
Q002	9	4.041	0.941	1.029	0.343	5.070
Q003	7	2.936	0.772	0.869	0.328	3.921
Q004	5	3.186	0.872	1.036	0.463	4.576
Q008	10	3.869	0.267	0.289	0.092	4.143
Q010	9	2.633	0.320	0.350	0.117	2.983
Q013	10	1.821	0.260	0.282	0.089	2.088
Q015	10	2.771	0.436	0.472	0.149	3.218
Q016	9	0.502	0.040	0.043	0.014	0.546
Q019	10	1.426	0.160	0.173	0.055	1.590
Q022	8	0.009	0.003	0.003	0.001	0.012
Q023	10	0.038	0.005	0.005	0.002	0.043
Q024	10	0.043	0.007	0.008	0.003	0.050
Q025	10	0.069	0.016	0.017	0.005	0.085
Q034	9	0.017	0.001	0.002	0.001	0.018
Q035	9	0.037	0.011	0.012	0.004	0.049
Q036	10	0.043	0.006	0.006	0.002	0.049
Q037	8	0.057	0.008	0.009	0.003	0.067
Q043	8	0.013	0.007	0.007	0.003	0.021

CASE ---------- RUN SERIES 6, LOG 6.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INSTRUMENTED FLOWING NOZZLE INSTALLED WITH GN2 OPPOSITE ENGINE 3 TO EVALUATE HEATING OF THE NOZZLE LIP WITH NO ENGINE DEFLECTIONS. LIP GAGES INSTALLED IN POSN 5.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC			
N001	6	2.132	0.179	0.205	0.084	2.384
N002	5	1.444	0.102	0.121	0.054	1.606
Q002	6	2.200	0.628	0.722	0.295	3.085
Q003	6	3.040	0.517	0.595	0.243	3.769
Q004	6	4.491	0.462	0.531	0.217	5.142
Q008	6	2.092	0.334	0.385	0.157	2.563
Q010	4	1.961	0.312	0.390	0.195	2.546
Q013	6	2.394	0.144	0.166	0.068	2.597
Q015	6	3.411	0.922	1.060	0.433	4.709
Q016	6	1.162	0.073	0.083	0.034	1.264
Q019	6	1.044	0.076	0.087	0.036	1.151
Q022	6	0.011	0.002	0.003	0.001	0.014
Q023	6	0.054	0.005	0.006	0.002	0.061
Q024	6	0.065	0.006	0.007	0.003	0.073
Q025	6	0.116	0.021	0.024	0.010	0.145
Q034	6	0.022	0.002	0.002	0.001	0.024
Q035	6	0.049	0.008	0.009	0.004	0.060
Q036	6	0.058	0.006	0.007	0.003	0.066
Q037	6	0.079	0.006	0.007	0.003	0.088
Q043	6	0.013	0.001	0.002	0.001	0.015

CASE ---------- RUN SERIES 7, LOG 7.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TESTS TO DETERMINE THRUST STRUCTURE HEATING WITH A LARGE HEAT SHIELD INTENDED TO SIMULATE A HEAT SHIELD FROM THE 6 ENGINE S-IV CONFIGURATION. ALTHOUGH 0.338 WAS LISTED ON ALL DATA SHEETS, THE DIAM. USED WAS PROB. 0.388 AS LISTED IN RUNS 175-183, LOG 8.1

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q002	5	1.436	0.309	0.367	0.164	1.929
Q003	6	4.562	0.855	0.983	0.402	5.767
Q004	6	4.514	0.619	0.712	0.291	5.386
Q008	6	2.560	1.185	1.362	0.556	4.229
Q009	6	3.394	1.311	1.508	0.616	5.242
Q010	5	3.105	0.386	0.459	0.205	3.721
Q011	6	2.546	0.392	0.451	0.184	3.098
Q013	6	2.289	0.782	0.899	0.367	3.391
Q014	6	1.437	0.107	0.123	0.050	1.587
Q015	6	3.182	0.678	0.780	0.318	4.137
Q016	6	2.451	0.375	0.432	0.176	2.980
Q017	5	0.965	0.186	0.221	0.099	1.262
Q018	5	1.034	0.291	0.346	0.155	1.498
Q019	6	1.639	0.445	0.511	0.209	2.265
Q023	5	0.027	0.003	0.004	0.002	0.032
Q024	5	0.040	0.006	0.007	0.003	0.049
Q025	6	0.080	0.014	0.016	0.007	0.100
Q031	6	0.016	0.005	0.006	0.003	0.024
Q032	5	0.023	0.003	0.004	0.002	0.028
Q052	4	2.045	0.354	0.443	0.221	2.709

CASE ---------- RUN SERIES 8, LOG 8.1 AND 8.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOZZLE EXIT PLANE BASE PRESSURE USING PROBES PARALLEL TO (SERIES 8.2 RNS 179-183) AND NORMAL TO (SERIES 8.1 RUNS 175-178) THE NOZZLE CENTERLINE. PROBE MOUNTED BETWEEN ENGINES 2,3 AND 5.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P SPECIA	8	0.080	0.020	0.022	0.008	0.103
P017	9	0.000	0.000	0.000	0.000	0.001
P018	9	0.000	0.000	0.000	0.000	0.000
Q001	9	1.274	0.331	0.362	0.121	1.635
Q002	9	1.691	0.485	0.530	0.177	2.221
Q003	9	4.121	0.796	0.870	0.290	4.992
Q004	9	4.089	0.836	0.914	0.305	5.004
Q008	9	2.069	0.529	0.579	0.193	2.648
Q009	9	2.634	0.541	0.592	0.197	3.225
Q011	9	2.501	0.241	0.264	0.088	2.765
Q013	9	2.192	0.487	0.532	0.177	2.725
Q015	9	2.374	0.271	0.296	0.099	2.670
Q016	9	2.136	0.299	0.327	0.109	2.463
Q017	8	1.050	0.136	0.150	0.053	1.209
Q019	9	1.577	0.366	0.400	0.133	1.977
Q022	9	0.012	0.003	0.003	0.001	0.015
Q023	9	0.044	0.008	0.009	0.003	0.054
Q025	9	0.098	0.023	0.025	0.008	0.123
Q031	8	0.017	0.004	0.004	0.001	0.021
Q034	9	0.029	0.009	0.010	0.003	0.039
Q035	9	0.050	0.005	0.006	0.002	0.056

CASE ---------- RUN SERIES 9, LOG 9.1.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF POSSIBLE BOUNDARY LAYER EFFECTS. FILLER MATERIAL REMOVED FROM TURBINE EXHAUST MANIFOLD AND INJECTION HOLES, SO THAT THE INITIAL VACUUM IN THIS VOLUME WOULD TEND TO REMOVE A PORTION OF THE NOZZLE BOUNDARY LAYER

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	9	0.001	0.001	0.001	0.000	0.001
P017	9	0.000	0.000	0.000	0.000	0.000
P018	9	0.000	0.000	0.000	0.000	0.000
Q001	9	1.006	0.326	0.356	0.119	1.362
Q002	9	1.257	0.391	0.428	0.143	1.685
Q003	8	2.908	0.715	0.792	0.280	3.748
Q004	8	4.404	0.564	0.625	0.221	5.066
Q008	9	2.017	0.422	0.462	0.154	2.479
Q009	9	2.318	0.468	0.512	0.171	2.830
Q011	9	2.559	0.219	0.240	0.080	2.799
Q013	7	3.193	0.304	0.342	0.129	3.581
Q015	9	2.814	0.398	0.435	0.145	3.249
Q016	6	2.318	0.172	0.198	0.081	2.560
Q017	9	1.052	0.408	0.446	0.149	1.498
Q019	9	1.998	0.285	0.312	0.104	2.311
Q022	9	0.012	0.004	0.005	0.002	0.017
Q023	9	0.059	0.007	0.008	0.003	0.067
Q024	9	0.101	0.055	0.061	0.020	0.161
Q025	9	0.161	0.059	0.064	0.021	0.225
Q030	8	0.007	0.003	0.003	0.001	0.011
Q034	9	0.025	0.004	0.005	0.002	0.030
Q035	5	0.066	0.004	0.005	0.002	0.073

CASE ---------- RUN SERIES 9, LOG 9.1.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF POSSIBLE BOUNDARY LAYER EFFECTS. FILLER MATERIAL REMOVED FROM TURBINE EXHAUST MANIFOLD AND INJECTION HOLES, SO THAT THE INITIAL VACUUM IN THIS VOLUME WOULD TEND TO REMOVE A PORTION OF THE NOZZLE BOUNDARY LAYER

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P001	8	0.023	0.005	0.005	0.002	0.029
P002	7	0.031	0.004	0.004	0.002	0.036
P003	7	0.026	0.003	0.004	0.001	0.030
P005	7	0.023	0.003	0.003	0.001	0.027
P006	8	0.023	0.002	0.002	0.001	0.025
P007	8	0.025	0.003	0.003	0.001	0.028
P008	8	0.021	0.002	0.002	0.001	0.024
P011	6	0.026	0.005	0.006	0.002	0.033
Q003	9	3.190	0.613	0.671	0.224	3.860
Q004	9	4.428	0.513	0.561	0.187	4.989
Q008	9	2.045	0.280	0.306	0.102	2.351
Q011	8	1.795	0.343	0.380	0.134	2.198
Q013	9	3.182	0.436	0.477	0.159	3.658
Q015	9	2.032	0.533	0.583	0.194	2.614
Q016	5	2.629	0.453	0.538	0.241	3.351
Q019	8	1.585	0.322	0.357	0.126	1.964
Q030	7	0.006	0.004	0.005	0.002	0.011
Q031	9	0.021	0.013	0.014	0.005	0.035
Q032	9	0.050	0.023	0.025	0.008	0.076
Q036	8	0.052	0.014	0.016	0.005	0.069
Q037	8	0.072	0.016	0.017	0.006	0.090

CASE ---------- RUN SERIES 11, LOG 11.1

GIMBAL PATTERN --- 5A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 3

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	2.440	0.292	0.336	0.137	2.851
Q002	6	3.812	0.594	0.683	0.279	4.648
Q003	5	6.736	0.063	0.075	0.033	6.836
Q004	6	7.687	1.041	1.197	0.489	9.153
Q019	5	2.190	0.137	0.162	0.073	2.408
Q022	6	0.015	0.007	0.008	0.003	0.025
Q024	6	0.077	0.038	0.043	0.018	0.130
Q025	6	0.197	0.052	0.059	0.024	0.270
Q030	6	0.023	0.006	0.007	0.003	0.031
Q031	6	0.045	0.010	0.012	0.005	0.060
Q032	6	0.061	0.013	0.015	0.006	0.080
Q033	5	0.016	0.003	0.003	0.001	0.020
Q034	6	0.020	0.010	0.012	0.005	0.034
Q035	6	0.058	0.010	0.012	0.005	0.072
Q036	6	0.066	0.010	0.012	0.005	0.080
Q037	6	0.083	0.010	0.011	0.005	0.096
Q040	5	0.029	0.002	0.002	0.001	0.032
Q042	5	0.082	0.022	0.026	0.012	0.117
Q043	5	0.018	0.004	0.005	0.002	0.025
Q046	6	0.917	0.257	0.296	0.121	1.280

CASE ---------- RUN SERIES 11, LOG 11.2

GIMBAL PATTERN --- 5A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 3, AND MAXIMUM ALTITUDE SIMULATED

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	2.118	0.447	0.514	0.210	2.748
Q002	6	3.807	0.617	0.710	0.290	4.676
Q003	6	6.984	0.959	1.103	0.450	8.335
Q004	6	8.575	0.862	0.992	0.405	9.790
Q019	5	2.317	0.423	0.502	0.225	2.990
Q022	6	0.015	0.004	0.004	0.002	0.021
Q024	6	0.100	0.009	0.010	0.004	0.112
Q025	6	0.222	0.011	0.013	0.005	0.238
Q030	6	0.021	0.005	0.005	0.002	0.027
Q031	6	0.046	0.005	0.006	0.003	0.054
Q032	6	0.063	0.005	0.006	0.003	0.071
Q033	4	0.016	0.003	0.004	0.002	0.021
Q034	6	0.029	0.007	0.008	0.003	0.039
Q035	6	0.056	0.012	0.014	0.006	0.073
Q036	6	0.074	0.012	0.014	0.006	0.090
Q037	6	0.089	0.013	0.015	0.006	0.107
Q040	6	0.023	0.003	0.004	0.002	0.028
Q042	6	0.095	0.021	0.024	0.010	0.124
Q043	5	0.018	0.002	0.003	0.001	0.021
Q046	6	0.680	0.117	0.135	0.055	0.845

CASE ---------- RUN SERIES 11, LOG 11.3

GIMBAL PATTERN --- 5B MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 1

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q001	3	2.716	0.319	0.440	0.254	3.478
Q002	3	4.335	0.231	0.318	0.184	4.887
Q003	3	5.533	0.311	0.428	0.247	6.274
Q004	3	6.968	1.264	1.741	1.005	9.984
Q019	3	4.595	0.170	0.234	0.135	5.001
Q022	3	0.019	0.006	0.008	0.005	0.033
Q024	2	0.112	0.016	0.027	0.019	0.171
Q025	2	0.229	0.040	0.072	0.051	0.381
Q030	2	0.023	0.002	0.003	0.002	0.029
Q031	3	0.039	0.011	0.015	0.009	0.065
Q032	3	0.057	0.012	0.017	0.010	0.086
Q033	2	0.020	0.002	0.004	0.003	0.029
Q034	3	0.047	0.034	0.047	0.027	0.129
Q035	3	0.051	0.018	0.025	0.014	0.094
Q036	2	0.056	0.016	0.027	0.019	0.115
Q037	2	0.069	0.017	0.029	0.021	0.131
Q040	3	0.023	0.003	0.005	0.003	0.031
Q042	3	0.139	0.013	0.018	0.010	0.170
Q043	3	0.020	0.002	0.003	0.002	0.025
Q046	3	0.842	0.023	0.032	0.019	0.898

CASE ---------- RUN SERIES 12, LOG 12.1

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE 7.5 DEGREES INBOARD (ENGINE NUMBER 4) ON THE CENTER NOZZLE HEATING RATES

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
K002	2	143.116	6.391	11.297	7.988	167.080
K004	5	5.900	0.459	0.545	0.244	6.632
K005	5	2.346	0.293	0.348	0.156	2.813
K006	5	1.592	0.205	0.244	0.109	1.919
K007	5	0.998	0.207	0.246	0.110	1.328
K009	6	0.797	0.233	0.268	0.109	1.125
L003	6	4.572	0.458	0.527	0.215	5.218
L004	6	2.034	0.176	0.203	0.083	2.282
L005	6	1.366	0.128	0.148	0.060	1.547
L006	6	1.297	0.101	0.116	0.047	1.439
L007	6	1.447	0.144	0.165	0.067	1.649
L008	6	1.522	0.194	0.223	0.091	1.796
M001	5	8.722	1.007	1.196	0.535	10.326
M006	6	1.144	0.124	0.143	0.058	1.319
M007	6	0.713	0.095	0.109	0.045	0.847
M008	6	0.923	0.186	0.214	0.087	1.185
M009	6	0.732	0.104	0.119	0.049	0.878

CASE ---------- RUN SERIES 12, LCG 12.1A

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE 7.5 DEGREES INBOARD (ENGINE NUMBER 4) ON THE HEAT SHIELD AND CENTER ENGINE NOZZLE HEATING RATES

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
K001	3	64.233	2.901	3.997	2.307	71.156
K003	3	11.733	0.602	0.829	0.479	13.170
K004	3	4.187	0.217	0.299	0.173	4.705
L001	3	317.666	7.591	10.459	6.039	335.782
L002	3	146.200	6.540	9.011	5.203	161.808
L003	3	44.500	2.393	3.297	1.903	50.210
L004	3	13.433	0.263	0.362	0.209	14.060
M003	2	25.750	1.650	2.917	2.063	31.938
M004	3	9.183	0.528	0.728	0.420	10.444
Q002	3	3.833	0.398	0.549	0.317	4.784
Q003	3	10.037	0.520	0.717	0.414	11.278
Q004	3	9.497	0.423	0.583	0.336	10.506
Q008	3	10.667	0.411	0.566	0.327	11.647
Q009	3	14.500	1.178	1.623	0.937	17.310
Q010	3	26.067	1.087	1.498	0.865	28.662
Q011	3	13.500	0.942	1.297	0.749	15.747
Q014	3	7.903	0.806	1.110	0.641	9.826
Q015	3	8.507	2.615	3.603	2.080	14.747
Q016	2	6.765	0.885	1.564	1.106	10.084
Q017	2	2.665	0.145	0.256	0.181	3.209
Q019	2	2.810	0.450	0.795	0.562	4.497

CASE ---------- RUN SERIES 12, LOG 12.2

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SAME AS SERIES 12.1 EXCEPT THE INSTRUMENTATION IS SWITCHED TO THE HEAT SHIELD AND THRUST CONE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	2.036	0.202	0.233	0.095	2.321
Q002	6	3.443	0.213	0.246	0.100	3.743
Q003	6	6.494	0.860	0.990	0.404	7.706
Q004	6	7.921	0.479	0.551	0.225	8.596
Q008	5	9.862	0.852	1.012	0.452	11.219
Q009	5	11.907	0.677	0.805	0.360	12.987
Q010	6	19.728	1.630	1.875	0.765	22.024
Q011	6	6.767	0.846	0.973	0.397	7.958
Q013	6	2.399	0.337	0.387	0.158	2.873
Q014	6	6.093	0.814	0.936	0.382	7.239
Q015	6	6.172	0.818	0.940	0.384	7.324
Q016	6	6.070	0.427	0.491	0.201	6.672
Q017	6	2.465	0.222	0.255	0.104	2.777
Q019	6	2.685	0.334	0.384	0.157	3.155
Q022	6	0.011	0.004	0.004	0.002	0.016
Q023	6	0.042	0.004	0.005	0.002	0.048
Q024	6	0.061	0.005	0.006	0.002	0.069
Q025	6	0.110	0.008	0.009	0.004	0.121
Q031	6	0.020	0.003	0.004	0.002	0.025
Q052	6	1.500	0.283	0.326	0.133	1.899

CASE ---------- RUN SERIES 12, LOG 12.3

GIMBAL PATTERN --- 4AB MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATED DUAL ACTUATOR FAILURE INBOARD ON ENGINE NUMBER 1

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
M001	2	5.462	0.034	0.060	0.043	5.590
M006	3	0.846	0.049	0.067	0.039	0.963
M008	3	0.820	0.030	0.042	0.024	0.893
Q001	3	3.084	0.148	0.204	0.118	3.437
Q002	3	3.364	0.029	0.040	0.023	3.433
Q003	3	6.594	0.726	1.000	0.577	8.326
Q004	3	5.520	0.545	0.751	0.434	6.821
Q007	3	0.440	0.024	0.034	0.019	0.498
Q008	3	4.169	0.502	0.692	0.399	5.367
Q009	3	5.171	0.498	0.686	0.396	6.360
Q010	2	1.195	0.501	0.885	0.626	3.074
Q011	1	0.784	0.0	0.0	0.0	0.784
Q013	3	1.753	0.178	0.246	0.142	2.179
Q014	3	1.799	0.090	0.123	0.071	2.012
Q015	3	1.254	0.268	0.370	0.213	1.894
Q016	3	1.658	0.215	0.296	0.171	2.170
Q017	3	2.904	0.336	0.463	0.267	3.705
Q019	3	2.592	0.377	0.520	0.300	3.493
Q022	3	0.009	0.002	0.003	0.002	0.015
Q023	3	0.036	0.002	0.002	0.001	0.040
Q024	3	0.059	0.007	0.009	0.005	0.075
Q025	3	0.108	0.002	0.003	0.002	0.113
Q031	3	0.026	0.003	0.004	0.002	0.033
Q052	3	3.913	0.463	0.638	0.368	5.019

CASE ---------- RUN SERIES 13, LOG 13.1.1

GIMBAL PATTERN --- 7 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE AT 5 DEGREES ON NO 4 ENGINE ON CENTER ENGINE NOZZLE ENVIRONMENT

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
K001	5	39.440	7.858	9.335	4.175	51.964
K002	2	2.990	0.880	1.556	1.100	6.290
K003	4	6.120	0.569	0.711	0.356	7.187
K004	4	2.522	0.129	0.162	0.081	2.765
L001	4	10.110	1.543	1.930	0.965	13.005
L002	4	9.435	1.562	1.954	0.977	12.366
L003	5	5.476	0.792	0.941	0.421	6.739
L004	4	3.932	0.114	0.142	0.071	4.146
M001	3	6.100	0.347	0.478	0.276	6.928
M003	4	3.655	0.148	0.186	0.093	3.933
M004	4	2.710	0.164	0.205	0.102	3.017
Q002	3	3.107	0.189	0.261	0.151	3.558
Q003	3	4.597	0.168	0.231	0.133	4.997
Q004	4	4.835	0.351	0.440	0.220	5.494
Q008	3	9.560	1.645	2.267	1.309	13.486
Q009	4	8.725	0.583	0.729	0.365	9.819
Q010	4	6.960	0.367	0.459	0.229	7.648
Q011	4	6.915	0.207	0.259	0.130	7.304
Q014	4	17.375	2.055	2.570	1.285	21.231
Q015	3	16.667	0.602	0.829	0.479	18.103
Q016	4	7.015	0.339	0.424	0.212	7.652
Q019	3	6.247	0.431	0.594	0.343	7.276

CASE ---------- RUN SERIES 13, LOG 13.1.1A

GIMBAL PATTERN --- 7 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE AT 5 DEGREES ON NO 4 ENGINE ON CENTER ENGINE NOZZLE ENVIRONMENT

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
K001	4	17.175	4.671	5.843	2.921	25.939
K003	4	5.890	0.653	0.816	0.408	7.115
K004	4	3.250	0.141	0.176	0.088	3.514
L001	4	40.650	7.030	8.794	4.397	53.841
L002	4	21.375	2.230	2.789	1.395	25.559
L003	4	7.707	0.567	0.710	0.355	8.772
L004	4	3.905	0.441	0.552	0.276	4.733
M003	4	5.950	0.567	0.709	0.354	7.013
M004	4	2.775	0.132	0.165	0.082	3.022
Q002	3	3.233	0.212	0.293	0.169	3.740
Q003	4	4.777	0.103	0.128	0.064	4.970
Q004	3	5.633	0.151	0.208	0.120	5.994
Q008	4	10.280	0.782	0.979	0.489	11.748
Q009	4	11.375	0.228	0.285	0.143	11.803
Q010	3	8.673	0.659	0.908	0.524	10.246
Q011	4	7.902	0.607	0.760	0.380	9.042
Q014	3	22.233	1.302	1.794	1.036	25.341
Q015	4	20.975	0.665	0.832	0.416	22.223
Q016	4	7.457	0.342	0.427	0.214	8.099
Q019	4	6.957	0.562	0.703	0.351	8.012

CASE ---------- RUN SERIES 14, LOG 14.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 630.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE ENGINE COMPONENT ENVIRONMENT

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q001	7	1.063	0.225	0.253	0.096	1.350
Q002	7	1.921	0.503	0.566	0.214	2.563
Q003	9	3.449	0.987	1.080	0.360	4.528
Q004	9	5.154	0.606	0.663	0.221	5.817
Q008	4	2.080	0.326	0.407	0.204	2.691
Q022	5	0.011	0.001	0.001	0.001	0.013
Q023	7	0.050	0.012	0.014	0.005	0.065
Q024	8	0.079	0.014	0.015	0.005	0.095
Q025	6	0.165	0.018	0.021	0.008	0.191
Q033	1	0.013	0.0	0.0	0.0	0.013
Q046	7	0.502	0.106	0.119	0.045	0.637
Q052	3	1.637	0.176	0.243	0.140	2.057
Q070	3	0.212	0.042	0.057	0.033	0.311
Q071	3	0.059	0.008	0.011	0.006	0.079
Q072	3	0.033	0.008	0.011	0.007	0.052
Q080	2	0.163	0.015	0.027	0.019	0.219
Q081	3	0.176	0.006	0.008	0.005	0.190
Q082	3	0.122	0.023	0.032	0.018	0.177
Q090	2	0.049	0.011	0.019	0.013	0.089
Q091	3	0.086	0.003	0.004	0.003	0.094
Q092	3	0.067	0.004	0.006	0.003	0.077
Q100	3	0.074	0.011	0.015	0.009	0.101
Q101	3	0.077	0.011	0.016	0.009	0.104
Q102	3	0.043	0.010	0.014	0.008	0.068

CASE ---------- RUN SERIES 14, LOG 14.1.1A

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE ENGINE COMPONENT ENVIRONMENT. ENGINE RING GAGES ON NO 3 ENGINE TO COMPARE WITH THOSE ON NO 1 ENGINE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ/FT-SEC			
Q001	2	3.010	0.210	0.371	0.262	3.797
Q002	2	4.915	1.385	2.448	1.731	10.109
Q003	1	5.370	0.0	0.0	0.0	5.370
Q004	2	3.390	1.070	1.892	1.337	7.402
Q015	2	3.370	0.170	0.300	0.212	4.007
Q022	2	0.006	0.002	0.003	0.002	0.013
Q023	2	0.056	0.007	0.012	0.009	0.082
Q024T	2	0.075	0.001	0.001	0.001	0.077
Q024R	2	0.020	0.003	0.006	0.004	0.032
Q025	2	0.173	0.021	0.037	0.026	0.252
Q038	2	0.006	0.002	0.003	0.002	0.013
Q040	2	0.033	0.004	0.007	0.005	0.049
Q041	2	0.009	0.001	0.001	0.001	0.011
Q052	2	2.035	0.605	1.069	0.756	4.304
Q053	2	0.473	0.018	0.032	0.022	0.540
Q054	2	0.579	0.025	0.044	0.031	0.673
Q055	2	0.436	0.074	0.130	0.092	0.712
Q070	2	0.102	0.005	0.009	0.007	0.121
Q080	2	0.137	0.0	0.0	0.0	0.137
Q090	2	0.047	0.003	0.005	0.003	0.057

CASE ---------- RUN SERIES 14, LOG 14.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- ON

REMARKS: TO DETERMINE J-2 ENGINE COMPONENT ENVIRONMENT

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	9	1.124	0.285	0.312	0.104	1.435
Q002	9	2.087	0.427	0.467	0.156	2.554
Q003	9	3.583	0.704	0.770	0.257	4.353
Q004	9	5.684	0.422	0.462	0.154	6.146
Q008	7	2.379	0.378	0.425	0.161	2.860
Q020	7	0.031	0.017	0.019	0.007	0.052
Q022	7	0.452	0.166	0.187	0.071	0.664
Q023	7	1.647	0.125	0.141	0.053	1.807
Q024	6	0.541	0.268	0.309	0.126	0.920
Q025	6	0.257	0.066	0.076	0.031	0.349
Q046	9	0.857	0.079	0.087	0.029	0.943
Q052	7	2.101	0.203	0.228	0.086	2.360
Q070	3	0.167	0.090	0.124	0.072	0.382
Q071	3	0.160	0.011	0.016	0.009	0.187
Q072	3	0.198	0.111	0.153	0.088	0.463
Q080	3	0.166	0.017	0.023	0.013	0.206
Q081	2	0.234	0.001	0.002	0.001	0.238
Q082	3	0.828	0.135	0.186	0.108	1.151
Q090	3	0.493	0.109	0.150	0.087	0.753
Q091	3	1.036	0.206	0.284	0.164	1.528
Q092	3	0.980	0.085	0.117	0.068	1.183
Q101	3	0.224	0.095	0.130	0.075	0.450
Q102	3	0.278	0.109	0.150	0.087	0.539

CASE ---------- RUN SERIES 14, LOG 14.3

GIMBAL PATTERN --- 3B MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: J-2 ENGINE COMPONENT ENVIRONMENT WITH 7.5 DEGREE SINGLE ACTUATOR FAIL. ON ENGINE NO 1. Q70-72,Q80-82,Q90-92,Q100-102 DOUBTFUL BECAUSE OF FLOW INTERFERENCE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	11	1.833	0.275	0.296	0.089	2.100
Q002	11	2.753	0.614	0.660	0.199	3.349
Q003	11	2.941	0.335	0.361	0.109	3.267
Q004	10	2.948	0.305	0.331	0.105	3.262
Q008	11	4.857	0.498	0.535	0.161	5.341
Q020	1	0.007	0.0	0.0	0.0	0.007
Q022	5	0.015	0.006	0.007	0.003	0.024
Q024	10	0.122	0.015	0.016	0.005	0.137
Q025	10	0.250	0.030	0.032	0.010	0.281
Q041	5	0.028	0.001	0.001	0.001	0.030
Q046	11	0.708	0.134	0.144	0.044	0.839
Q052	6	2.019	0.499	0.574	0.234	2.722
Q053	8	0.151	0.033	0.037	0.013	0.191
Q070	3	0.460	0.190	0.262	0.152	0.915
Q071	4	0.150	0.019	0.024	0.012	0.185
Q072	3	0.102	0.013	0.018	0.010	0.133
Q080	4	0.262	0.075	0.094	0.047	0.403
Q081	4	0.406	0.011	0.014	0.007	0.428
Q082	3	0.287	0.021	0.030	0.017	0.339
Q090	4	0.030	0.005	0.006	0.003	0.039
Q091	4	0.082	0.005	0.007	0.003	0.092
Q092	3	0.103	0.004	0.006	0.003	0.112
Q101	4	0.153	0.006	0.007	0.004	0.164
Q102	3	0.100	0.009	0.013	0.007	0.122

CASE ---------- RUN SERIES 14, LOG 14.4

GIMBAL PATTERN --- 38 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- ON

REMARKS: ENGINE COMPONENT ENVIRONMENT WITH SINGLE ACTUATOR FAILURE ON NUMBER ONE ENGINE AT 7.5 DEGREES OUTBOARD

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	11	1.675	0.231	0.248	0.075	1.899
Q002	11	2.505	0.225	0.242	0.073	2.723
Q003	10	2.854	0.329	0.357	0.113	3.192
Q004	10	3.168	0.392	0.425	0.134	3.571
Q008	10	5.126	0.653	0.708	0.224	5.797
Q020	4	0.050	0.010	0.013	0.007	0.070
Q022	7	0.669	0.153	0.173	0.065	0.865
Q024	10	0.784	0.241	0.261	0.083	1.031
Q025	11	0.310	0.087	0.093	0.028	0.394
Q041	8	0.117	0.016	0.018	0.006	0.135
Q046	10	1.287	0.147	0.159	0.050	1.438
Q052	3	2.343	0.224	0.309	0.178	2.878
Q053	6	0.568	0.175	0.201	0.082	0.815

CASE ---------- RUN SERIES 15, LOG 15.3.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: DETERMINATION OF THRUST STRUCTURE HEATING RATES
INTERSTAGE GAGES AT 0 DEGREES . ALSO SEE LOG 15.3.2

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC (P) IN PSIA				
P015	3	0.030	0.001	0.002	0.001	0.033
P017	3	0.024	0.000	0.000	0.000	0.025
Q004	3	5.378	0.365	0.503	0.290	6.249
Q020	2	0.054	0.004	0.007	0.005	0.069
Q021	3	0.252	0.067	0.093	0.054	0.413
Q022	3	0.162	0.093	0.128	0.074	0.385
Q023	2	2.098	0.238	0.421	0.297	2.990
Q024	3	1.131	0.322	0.444	0.257	1.901
Q025	3	0.458	0.122	0.168	0.097	0.748
Q026	2	0.285	0.075	0.133	0.094	0.566
Q027	2	4.520	0.260	0.460	0.325	5.495
Q028	3	7.873	0.607	0.837	0.483	9.322
Q029	1	0.093	0.0	0.0	0.0	0.093
Q030	2	0.136	0.043	0.076	0.054	0.298
Q031	3	0.689	0.012	0.017	0.010	0.718
Q032	3	0.364	0.123	0.169	0.098	0.657
Q036	3	1.651	0.192	0.265	0.153	2.110
Q037	3	0.270	0.064	0.088	0.051	0.423
Q040	3	0.626	0.210	0.289	0.167	1.126
Q043	3	0.158	0.044	0.060	0.035	0.262
Q044	3	0.276	0.085	0.117	0.067	0.479
Q046	3	1.089	0.014	0.019	0.011	1.121

CASE ---------- RUN SERIES 15, LOG 15.3.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: DETERMINATION OF THRUST STRUCTURE HEATING RATES
INTERSTAGE GAGES AT 45 DEGREES. ALSO SEE RUN SERIES 15.3.1

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC (P) IN PSIA			
P015	2	0.028	0.001	0.002	0.001	0.031
P017	2	0.024	0.000	0.000	0.000	0.025
Q002	2	4.935	0.425	0.751	0.531	6.529
Q003	2	6.025	0.665	1.176	0.831	8.519
Q004	4	6.640	0.301	0.376	0.188	7.204
Q020	4	0.086	0.026	0.033	0.016	0.135
Q021	4	0.338	0.047	0.059	0.030	0.427
Q022	3	0.083	0.002	0.002	0.001	0.088
Q023	4	1.755	0.602	0.754	0.377	2.886
Q024	3	1.177	0.332	0.457	0.264	1.969
Q025	3	0.521	0.140	0.193	0.111	0.855
Q026	4	0.114	0.030	0.037	0.019	0.169
Q027	4	0.612	0.032	0.040	0.020	0.672
Q028	4	0.814	0.104	0.130	0.065	1.009
Q029	4	0.185	0.024	0.030	0.015	0.230
Q030	3	0.292	0.188	0.259	0.150	0.740
Q031	4	0.662	0.184	0.230	0.115	1.007
Q032	4	0.420	0.167	0.209	0.104	0.734
Q036	4	1.714	0.460	0.575	0.288	2.576
Q037	4	0.335	0.133	0.166	0.083	0.584
Q040	4	0.482	0.074	0.092	0.046	0.621
Q043	4	0.121	0.017	0.021	0.010	0.152
Q044	4	0.173	0.075	0.094	0.047	0.313
Q046	1	0.910	0.0	0.0	0.0	0.910

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 15, LOG 15.3.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: DETERMINATION OF THRUST STRUCTURE HEATING RATES
INTERSTAGE GAGES AT 45 DEGREES. ALSO SEE RUN SERIES 15.3.1

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC (P) IN PSIA				
0054	3	0.910	0.053	0.073	0.042	1.036

CASE ---------- RUN SERIES 16 , LOG 16.1

GIMBAL PATTERN --- 38 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECTS OF SINGLE ACTUATOR FAILURE OUTBOARD ON THRUST STRUCTURE WITH INTERSTAGE. INTERSTAGE GAGES 26-29 AT 0 DEGREES AZIMUTH

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q004	3	4.737	0.406	0.560	0.323	5.706
Q020	3	0.031	0.007	0.009	0.005	0.047
Q021	3	0.329	0.009	0.012	0.007	0.351
Q022	3	0.190	0.018	0.025	0.014	0.233
Q023	2	1.940	0.020	0.035	0.025	2.015
Q024	3	1.019	0.076	0.104	0.060	1.200
Q025	3	0.478	0.093	0.129	0.074	0.701
Q026	3	0.306	0.046	0.064	0.037	0.416
Q027	3	3.583	0.314	0.432	0.249	4.332
Q028	3	5.483	0.908	1.251	0.722	7.650
Q029	1	0.424	0.0	0.0	0.0	0.424
Q030	3	0.120	0.004	0.005	0.003	0.129
Q031	3	0.696	0.082	0.113	0.065	0.892
Q032	2	0.536	0.026	0.046	0.033	0.634
Q036	3	0.159	0.037	0.051	0.029	0.248
Q037	3	0.186	0.049	0.067	0.039	0.302
Q038	2	0.501	0.050	0.088	0.062	0.687
Q040	3	1.155	0.031	0.042	0.025	1.229
Q043	3	0.065	0.020	0.028	0.016	0.114
Q044	3	0.345	0.045	0.062	0.036	0.453
Q046	2	1.105	0.015	0.027	0.019	1.161
Q054	2	0.593	0.065	0.115	0.081	0.837

CASE ---------- RUN SERIES 16, LOG 16.3.1

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE INBOARD ON THRUST STRUCTURE HEATING RATES WITH INTERSTAGE ON. INTERSTAGE GAGES Q26,27,28 AT 0 DEGREES AZIMUTH

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q004	3	7.873	0.681	0.938	0.541	9.497
Q020	3	0.127	0.054	0.075	0.043	0.257
Q021	3	0.356	0.065	0.089	0.052	0.511
Q022	2	0.211	0.145	0.256	0.181	0.755
Q023	3	2.117	0.363	0.500	0.289	2.982
Q024	3	0.676	0.202	0.278	0.161	1.158
Q024R	2	0.017	0.001	0.002	0.001	0.021
Q025	3	0.370	0.064	0.088	0.051	0.522
Q026	3	0.197	0.011	0.016	0.009	0.224
Q027	3	3.437	0.397	0.547	0.316	4.385
Q028	3	6.967	0.528	0.727	0.420	8.226
Q029	3	0.307	0.131	0.181	0.104	0.620
Q030	3	0.527	0.109	0.151	0.087	0.788
Q031	3	0.826	0.054	0.075	0.043	0.955
Q032	3	0.355	0.163	0.224	0.129	0.744
Q036	3	0.944	0.094	0.129	0.074	1.167
Q037	3	0.226	0.026	0.035	0.020	0.287
Q038	3	0.428	0.048	0.067	0.039	0.544
Q040	2	0.945	0.165	0.292	0.206	1.564
Q041	3	0.150	0.042	0.058	0.034	0.251
Q044	3	0.316	0.024	0.033	0.019	0.374
Q054	3	1.214	0.059	0.081	0.047	1.353

CASE ---------- RUN SERIES 18, LOG 18.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE DEFLECTIONS WITH 1.13 DEGREE PITCH OR YAW

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	4	3.085	0.349	0.437	0.219	3.741
Q002	7	4.684	0.591	0.665	0.251	5.438
Q003	7	7.041	0.465	0.523	0.198	7.635
Q004	6	6.330	0.414	0.476	0.194	6.913
Q006	1	4.060	0.0	0.0	0.0	4.060
Q008	7	6.019	0.838	0.943	0.356	7.088
Q009	7	5.413	0.428	0.481	0.182	5.959
Q010	6	3.090	0.116	0.133	0.054	3.253
Q011	7	2.801	0.243	0.273	0.103	3.111
Q013	7	2.566	0.233	0.263	0.099	2.864
Q014	6	1.917	0.290	0.334	0.136	2.326
Q015	7	2.650	0.378	0.426	0.161	3.133
Q016	7	1.984	0.146	0.164	0.062	2.171
Q017	6	1.205	0.212	0.243	0.099	1.503
Q019	6	2.712	0.295	0.339	0.138	3.127
Q023	7	0.054	0.010	0.011	0.004	0.067
Q024	7	0.071	0.009	0.010	0.004	0.083
Q025	7	0.159	0.022	0.025	0.010	0.187
Q031	4	0.041	0.004	0.005	0.002	0.048
Q048	3	0.043	0.006	0.008	0.005	0.058
Q044	6	0.113	0.013	0.015	0.006	0.131
Q046	6	0.370	0.077	0.089	0.036	0.479
Q052	4	2.487	0.280	0.350	0.175	3.013
Q054	6	0.767	0.117	0.134	0.055	0.932

CASE ---------- RUN SERIES 19, LOG 19.1

GIMBAL PATTERN --- 9 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREE PITCH OR YAW DEFLECTION

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	3.347	0.382	0.440	0.179	3.885
Q002	6	6.120	0.657	0.755	0.308	7.045
Q003	5	7.988	0.231	0.274	0.122	8.355
Q004	5	7.112	0.298	0.354	0.158	7.587
Q004R	6	0.042	0.004	0.004	0.002	0.047
Q006	6	7.037	0.517	0.594	0.243	7.765
Q008	5	7.834	0.390	0.463	0.207	8.456
Q009	6	6.037	0.315	0.362	0.148	6.480
Q010	6	3.560	0.450	0.518	0.211	4.194
Q011	6	2.573	0.277	0.318	0.130	2.963
Q013	6	3.065	0.246	0.283	0.116	3.412
Q014	5	1.708	0.191	0.227	0.101	2.012
Q015	4	3.977	0.456	0.570	0.285	4.832
Q016	6	2.385	0.176	0.203	0.083	2.633
Q017	6	2.070	0.169	0.194	0.079	2.308
Q019	6	2.453	0.281	0.323	0.132	2.849
Q023	6	0.063	0.006	0.007	0.003	0.071
Q024	6	0.083	0.006	0.007	0.003	0.092
Q025	6	0.180	0.014	0.016	0.007	0.200
Q044	5	0.096	0.008	0.009	0.004	0.108
Q046	5	0.371	0.081	0.096	0.043	0.500
Q054	4	0.717	0.151	0.189	0.094	1.000
Q110	2	0.279	0.003	0.005	0.004	0.290

CASE ---------- RUN SERIES 19, LOG 19.2

GIMBAL PATTERN --- 9A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	3.223	0.176	0.202	0.083	3.471
Q002	6	5.328	0.167	0.193	0.079	5.564
Q003	6	6.888	0.139	0.160	0.065	7.085
Q004	6	6.638	0.553	0.637	0.260	7.418
Q004R	6	0.041	0.002	0.002	0.001	0.043
Q006	6	5.495	0.244	0.281	0.115	5.839
Q008	6	7.215	0.633	0.728	0.297	8.107
Q009	6	6.802	0.717	0.824	0.337	7.811
Q010	6	2.843	0.176	0.202	0.083	3.091
Q011	6	2.447	0.219	0.252	0.103	2.756
Q013	6	2.225	0.118	0.135	0.055	2.391
Q014	6	1.698	0.180	0.208	0.085	1.952
Q015	6	3.833	0.354	0.407	0.166	4.332
Q016	5	2.252	0.067	0.079	0.035	2.358
Q017	5	1.872	0.145	0.172	0.077	2.103
Q019	6	2.868	0.326	0.375	0.153	3.328
Q023	6	0.046	0.018	0.021	0.008	0.072
Q024	6	0.059	0.023	0.026	0.011	0.091
Q025	6	0.122	0.054	0.062	0.025	0.199
Q044	6	0.117	0.020	0.022	0.009	0.145
Q046	6	0.265	0.032	0.037	0.015	0.311
Q111A	2	0.151	0.033	0.058	0.041	0.275
Q112A	2	0.072	0.008	0.013	0.009	0.101
Q120A	2	0.073	0.021	0.038	0.027	0.154

CASE ---------- RUN SERIES 19, LOG 19.2.2A & AB

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW DEFLECTIONS
RUNS 536-541 LOG A AND RUNS 548-550 LOG AB
ALSO SEE LOG 19.2.2B

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q002	9	5.417	0.710	0.777	0.259	6.194
Q003	9	8.764	0.783	0.856	0.285	9.621
Q009	9	6.537	0.656	0.718	0.239	7.254
Q010	8	2.915	0.584	0.647	0.229	3.601
Q013	9	3.829	0.478	0.522	0.174	4.351
Q014	8	3.394	0.490	0.543	0.192	3.969
Q016	8	2.776	0.233	0.258	0.091	3.050
Q017	7	2.076	0.309	0.347	0.131	2.470
Q023	3	1.480	0.553	0.762	0.440	2.800
Q024	2	1.060	0.080	0.141	0.100	1.360
Q025	3	0.408	0.131	0.181	0.104	0.721
Q026	4	0.154	0.032	0.040	0.020	0.213
Q027	3	1.177	0.154	0.212	0.122	1.543
Q028	4	1.310	0.165	0.206	0.103	1.619
Q029	5	0.170	0.015	0.018	0.008	0.194
Q031	2	0.927	0.252	0.446	0.316	1.874
Q032	6	0.388	0.191	0.219	0.090	0.657
Q040	5	0.858	0.328	0.389	0.174	1.380
Q054	3	0.687	0.101	0.140	0.081	0.929
Q110B	5	1.248	0.257	0.306	0.137	1.658
Q111B	2	0.910	0.060	0.106	0.075	1.135
Q112B	2	0.840	0.249	0.441	0.312	1.776

CASE ---------- RUN SERIES 19, LOG 19.2.2B

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: NOMINAL STEADY STATE DEFLECTION WITH 0.8 DEGREES PITCH OR YAW
ALSO SEE LOG 19.2.2A & AB

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	7	3.876	0.646	0.727	0.275	4.700
Q004	7	7.576	0.844	0.949	0.359	8.652
Q006	7	7.024	0.257	0.289	0.109	7.352
Q007	3	2.870	0.638	0.879	0.508	4.393
Q008	7	6.504	0.859	0.967	0.365	7.600
Q011	6	3.813	0.526	0.605	0.247	4.555
Q015	7	3.694	0.437	0.492	0.186	4.252
Q019	7	2.400	0.271	0.305	0.115	2.745
Q020	6	0.055	0.029	0.033	0.013	0.095
Q021	5	0.108	0.042	0.050	0.023	0.176
Q022	6	0.211	0.053	0.061	0.025	0.285
Q030	6	0.545	0.193	0.222	0.090	0.816
Q033	2	0.232	0.007	0.011	0.008	0.257
Q034	7	0.250	0.050	0.057	0.021	0.314
Q035	7	1.190	0.239	0.269	0.102	1.495
Q036	6	1.272	0.269	0.309	0.126	1.651
Q037	7	0.265	0.125	0.141	0.053	0.424
Q038	2	0.430	0.090	0.159	0.112	0.767
Q040	2	1.220	0.020	0.035	0.025	1.295
Q041	3	0.156	0.033	0.045	0.026	0.233
Q043	3	0.292	0.069	0.094	0.055	0.455
Q052	2	4.315	0.815	1.441	1.019	7.371

CASE ---------- RUN SERIES 19, LOG 19.2.3A

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW
ALSO SEE LOG 19.2.3B

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q002	6	5.708	1.878	2.160	0.882	8.354
Q003	5	8.628	0.929	1.103	0.493	10.108
Q009	5	6.918	0.808	0.960	0.429	8.205
Q010	5	2.594	0.138	0.164	0.073	2.814
Q013	5	3.764	0.702	0.833	0.373	4.882
Q014	6	3.805	0.712	0.818	0.334	4.807
Q016	6	2.465	0.382	0.439	0.179	3.003
Q017	6	1.898	0.485	0.558	0.228	2.582
Q023	6	0.068	0.007	0.008	0.003	0.078
Q024	5	0.108	0.010	0.012	0.005	0.124
Q025	5	0.210	0.006	0.008	0.003	0.221
Q031	6	0.037	0.003	0.003	0.001	0.041
Q032	6	0.059	0.004	0.005	0.002	0.065
Q054	6	0.665	0.090	0.103	0.042	0.792
Q1208	1	0.142	0.0	0.0	0.0	0.142
Q1218	2	0.095	0.010	0.018	0.013	0.133
Q1228	2	0.031	0.016	0.029	0.021	0.093

CASE ---------- RUN SERIES 19, LOG 19.2.3B

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREE PITCH OR YAW DEFLECTIONS
ALSO SEE LOG 19.2.3A

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	3.115	0.380	0.437	0.178	3.650
Q004	5	6.814	0.334	0.397	0.178	7.347
Q006	6	7.022	0.452	0.520	0.212	7.659
Q007	6	2.715	0.501	0.577	0.235	3.421
Q008	4	6.215	1.256	1.571	0.786	8.572
Q011	6	4.063	0.537	0.618	0.252	4.820
Q015	6	3.425	0.535	0.615	0.251	4.179
Q019	6	2.127	0.334	0.384	0.157	2.597
Q020	4	0.004	0.001	0.001	0.000	0.005
Q022	5	0.018	0.004	0.005	0.002	0.026
Q030	6	0.022	0.005	0.005	0.002	0.028
Q033	5	0.013	0.002	0.003	0.001	0.017
Q034	5	0.032	0.006	0.007	0.003	0.041
Q035	6	0.077	0.007	0.008	0.003	0.087
Q036	6	0.097	0.008	0.010	0.004	0.109
Q037	6	0.111	0.005	0.006	0.002	0.118
Q040	6	0.034	0.013	0.015	0.006	0.052
Q041	6	0.032	0.001	0.002	0.001	0.034
Q043	6	0.020	0.003	0.003	0.001	0.024
Q052	6	3.427	0.778	0.895	0.365	4.523

CASE ---------- RUN SERIES 19, LOG 19.3

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	4	2.885	0.344	0.430	0.215	3.530
Q002	6	4.927	1.028	1.182	0.483	6.375
Q003	6	7.455	1.048	1.205	0.492	8.931
Q004	6	6.945	0.479	0.551	0.225	7.620
Q004R	6	0.040	0.002	0.002	0.001	0.043
Q006	5	6.320	0.455	0.541	0.242	7.045
Q008	6	7.065	0.258	0.296	0.121	7.428
Q009	6	6.730	0.478	0.549	0.224	7.403
Q010	6	3.293	0.534	0.614	0.251	4.045
Q011	6	3.713	0.413	0.475	0.194	4.295
Q013	6	3.002	0.224	0.258	0.105	3.317
Q014	6	2.507	0.088	0.101	0.041	2.630
Q015	6	3.302	0.497	0.572	0.234	4.002
Q016	6	2.222	0.208	0.239	0.098	2.515
Q017	6	1.358	0.333	0.383	0.156	1.827
Q019	6	2.682	0.407	0.469	0.191	3.256
Q023	6	0.067	0.012	0.014	0.006	0.084
Q024	5	0.082	0.003	0.003	0.001	0.086
Q025	5	0.171	0.003	0.004	0.002	0.176
Q044	6	0.101	0.043	0.050	0.020	0.162
Q046	6	0.426	0.044	0.050	0.020	0.487
Q110B	2	0.254	0.018	0.033	0.023	0.324
Q111B	2	0.109	0.008	0.014	0.010	0.139
Q112B	2	0.071	0.001	0.002	0.001	0.075

CASE ---------- RUN SERIES 20, LOG 20.1.1 AND LOG 20.1.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT
LOG 20.1.1 RUNS 551-558, LOG 20.1.2 RUNS 571-576

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	3.687	0.847	0.974	0.398	4.880
Q002	7	4.599	0.494	0.556	0.210	5.229
Q003	8	5.167	0.518	0.573	0.203	5.776
Q004	6	3.882	0.787	0.905	0.369	4.990
Q006	6	4.280	0.614	0.706	0.288	5.144
Q008	5	7.620	0.659	0.783	0.350	8.670
Q009	8	8.512	0.521	0.577	0.204	9.124
Q010	4	4.835	0.951	1.190	0.595	6.620
Q011	5	1.528	0.470	0.559	0.250	2.277
Q013	8	4.309	1.428	1.581	0.559	5.986
Q014	7	2.969	0.475	0.535	0.202	3.575
Q015	5	9.318	1.897	2.254	1.008	12.342
Q016	7	2.883	0.768	0.864	0.326	3.862
Q017	7	2.700	0.124	0.140	0.053	2.858
Q019	6	7.612	0.200	0.231	0.094	7.894
Q020	6	0.001	0.001	0.001	0.000	0.002
Q021	6	0.001	0.000	0.000	0.000	0.001
Q022	5	0.013	0.008	0.009	0.004	0.026
Q023	6	0.066	0.019	0.022	0.009	0.093
Q024	8	0.109	0.024	0.026	0.009	0.137
Q025	8	0.238	0.047	0.052	0.018	0.293
Q030	5	0.021	0.004	0.005	0.002	0.027
Q031	7	0.041	0.010	0.011	0.004	0.054
Q032	7	0.076	0.009	0.010	0.004	0.088

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.1.1 AND LOG 20.1.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT
LOG 20.1.1 RUNS 551-558, LOG 20.1.2 RUNS 571-576

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q034	5	0.042	0.010	0.012	0.005	0.058
Q035	6	0.115	0.015	0.017	0.007	0.137
Q038	6	0.001	0.000	0.000	0.000	0.001
Q044	7	0.163	0.020	0.022	0.008	0.188
Q110A	2	0.226	0.014	0.024	0.017	0.277
Q111A	2	0.108	0.028	0.049	0.034	0.212
Q112A	2	0.030	0.006	0.011	0.008	0.055
Q121A	1	0.098	0.0	0.0	0.0	0.098
Q122A	1	0.013	0.0	0.0	0.0	0.013

CASE ---------- RUN SERIES 20, LOG 20A.1.2

GIMBAL PATTERN --- 28-MOD MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES NUMBER 3 ENGINE OUT. MODIFIED GIMBAL PATTERN 28 IS THE SAME AS 28 EXCEPT THAT THE INOPERATIVE ENGINE IS ALSO GIMBALLED

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	5	3.960	0.766	0.910	0.407	5.181
Q004	4	3.897	0.313	0.391	0.196	4.484
Q006	4	3.992	0.192	0.240	0.120	4.353
Q008	5	6.768	1.042	1.238	0.554	8.429
Q011	5	1.426	0.670	0.796	0.356	2.493
Q019	4	8.585	0.499	0.624	0.312	9.520
Q020	3	0.001	0.0	0.0	0.0	0.001
Q021	5	0.001	0.000	0.000	0.000	0.001
Q022	4	0.019	0.005	0.006	0.003	0.029
Q023	5	0.101	0.007	0.008	0.004	0.112
Q024	5	0.127	0.003	0.003	0.001	0.131
Q030	2	0.037	0.009	0.016	0.011	0.071
Q033	4	0.027	0.005	0.006	0.003	0.037
Q043	5	0.009	0.001	0.002	0.001	0.011
Q046	4	0.225	0.080	0.100	0.050	0.375

CASE ---------- RUN SERIES 20, LOG 20.2.1 AND LOG 20.2.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT AND INTERSTAGE ON. INTERSTAGE 'A' GAGES AT 29, 'B' GAGES AT 0 DEGREES
LOG 20.2.1 RUNS 559-564, LOG 20.2.2 RUNS 565-570

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	6	3.782	0.509	0.586	0.239	4.499
Q002	5	5.290	1.971	2.341	1.047	8.431
Q003	6	4.398	0.700	0.805	0.329	5.385
Q004	6	3.937	0.279	0.321	0.131	4.330
Q006	6	4.417	0.427	0.491	0.201	5.018
Q008	5	8.338	0.448	0.533	0.238	9.052
Q009	6	7.778	0.502	0.577	0.236	8.485
Q010	5	4.744	1.059	1.258	0.563	6.432
Q015	6	10.303	1.296	1.490	0.608	12.129
Q017	6	2.790	0.405	0.466	0.190	3.361
Q019	4	8.180	0.291	0.363	0.182	8.725
Q020	5	0.026	0.006	0.007	0.003	0.036
Q021	5	0.024	0.008	0.010	0.004	0.037
Q022	6	0.116	0.036	0.041	0.017	0.167
Q023	6	1.433	0.226	0.259	0.106	1.751
Q024	4	2.057	0.458	0.574	0.287	2.918
Q025	6	0.703	0.127	0.146	0.060	0.883
Q030	5	0.082	0.017	0.020	0.009	0.109
Q031	5	1.260	0.338	0.402	0.180	1.799
Q032	6	1.238	0.397	0.456	0.186	1.797
Q044	5	0.350	0.116	0.138	0.061	0.534
Q110A	2	0.295	0.055	0.097	0.069	0.501
Q111A	2	0.310	0.020	0.035	0.025	0.385
Q112A	2	0.360	0.010	0.018	0.013	0.398

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.2.1 AND LOG 20.2.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT AND INTERSTAGE ON. INTERSTAGE 'A' GAGES AT 29, 'B' GAGES AT 0 DEGREES
LOG 20.2.1 RUNS 559-564, LOG 20.2.2 RUNS 565-570

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q120A	2	0.465	0.075	0.133	0.094	0.746
Q121A	2	1.390	0.060	0.106	0.075	1.615
Q122A	1	0.450	0.0	0.0	0.0	0.450
Q26A	5	0.122	0.034	0.041	0.018	0.177
Q26B	6	0.378	0.083	0.095	0.039	0.495
Q27A	6	0.862	0.280	0.322	0.132	1.256
Q27B	6	1.947	0.378	0.435	0.178	2.480
Q29A	3	0.567	0.163	0.225	0.130	0.957
Q28B	6	2.203	0.472	0.543	0.222	2.868
Q29B	4	0.897	0.115	0.144	0.072	1.113

CASE ---------- RUN SERIES 21, LOG 21.1

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE INBOARD AT 3 DEGREES ON BASE REGION HEATING RATES

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		BTU/SQ-FT-SEC				
Q001	5	5.958	0.984	1.169	0.523	7.526
Q002	5	8.702	1.180	1.402	0.627	10.583
Q003	5	8.752	1.077	1.279	0.572	10.468
Q004	6	7.265	0.688	0.791	0.323	8.234
Q006	5	6.164	0.444	0.528	0.236	6.872
Q008	6	11.583	0.684	0.787	0.321	12.547
Q009	5	9.854	0.744	0.883	0.395	11.039
Q010	5	2.146	0.677	0.805	0.360	3.226
Q011	6	2.953	0.163	0.187	0.076	3.183
Q013	5	4.986	0.355	0.421	0.188	5.551
Q014	6	3.768	0.633	0.728	0.297	4.660
Q015	5	6.562	0.491	0.584	0.261	7.345
Q016	1	2.490	0.0	0.0	0.0	2.490
Q017	4	2.687	0.345	0.432	0.216	3.335
Q019	6	3.160	0.212	0.244	0.100	3.459

CASE ---------- RUN SERIES 21, LOG 21.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE INBOARD AT 3 DEGREES WITH INTERSTAGE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q001	7	5.289	0.642	0.723	0.273	6.108
Q002	7	8.253	0.534	0.601	0.227	8.934
Q003	6	8.530	1.233	1.418	0.579	10.267
Q004	6	7.027	0.960	1.104	0.451	8.379
Q006	6	7.240	0.612	0.704	0.287	8.102
Q008	7	11.264	1.038	1.168	0.441	12.589
Q009	6	9.340	1.079	1.241	0.507	10.860
Q010	5	2.734	0.573	0.680	0.304	3.647
Q011	7	3.243	0.810	0.911	0.344	4.276
Q013	6	5.548	1.618	1.861	0.760	7.827
Q014	7	3.677	1.027	1.156	0.437	4.988
Q015	7	7.120	1.463	1.646	0.622	8.987
Q016	4	3.130	0.322	0.403	0.201	3.734
Q017	7	2.740	0.444	0.500	0.189	3.307
Q019	7	3.650	0.613	0.690	0.261	4.432

CASE ---------- RUN SERIES 22, LOG 22.1

GIMBAL PATTERN --- 68 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE OUTBOARD AT 3 DEGREES ON BASE REGION HEATING RATES. RUN 604 QUESTIONABLE DUE TO EARLY DIAPHRAGM BREAK AND EARLY BLAST WAVE RETURN

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q020	6	0.003	0.006	0.006	0.003	0.011
Q021	6	0.003	0.004	0.005	0.002	0.009
Q022	6	0.013	0.009	0.010	0.004	0.026
Q023	5	0.040	0.015	0.018	0.008	0.065
Q024	6	0.084	0.011	0.012	0.005	0.099
Q025	6	0.193	0.010	0.012	0.005	0.207
Q030	6	0.009	0.005	0.005	0.002	0.016
Q031	6	0.030	0.008	0.010	0.004	0.042
Q032	6	0.061	0.006	0.007	0.003	0.069
Q034	6	0.033	0.019	0.022	0.009	0.060
Q035	6	0.051	0.033	0.037	0.015	0.097
Q037	6	0.056	0.011	0.013	0.005	0.072
Q044	6	0.142	0.029	0.033	0.013	0.183
Q110	2	0.338	0.213	0.377	0.267	1.139
Q111	2	0.187	0.007	0.012	0.009	0.213
Q112	2	0.084	0.030	0.053	0.037	0.196

CASE ---------- RUN SERIES 22, LOG 22.2

GIMBAL PATTERN --- 6B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE------- ON

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE OUTBOARD AT 3 DEGREES WITH INTERSTAGE ON, ON BASE REGION HEATING RATES

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			BTU/SQ-FT-SEC			
Q020	7	0.034	0.013	0.014	0.005	0.051
Q021	7	0.066	0.028	0.031	0.012	0.102
Q022	7	0.155	0.044	0.049	0.019	0.210
Q023	5	0.818	0.160	0.190	0.085	1.073
Q024	4	1.172	0.100	0.125	0.062	1.360
Q025	5	0.463	0.116	0.138	0.062	0.648
Q026	6	0.160	0.035	0.040	0.016	0.209
Q027	6	1.238	0.061	0.071	0.029	1.325
Q029	6	0.287	0.107	0.123	0.050	0.439
Q030	7	0.195	0.050	0.056	0.021	0.258
Q031	6	0.450	0.082	0.095	0.039	0.566
Q032	7	0.566	0.115	0.129	0.049	0.713
Q044	7	0.220	0.080	0.090	0.034	0.321
Q110	2	0.309	0.032	0.057	0.040	0.429
Q111	2	0.288	0.100	0.177	0.125	0.663
Q112	2	0.155	0.021	0.036	0.026	0.232

CASE ---------- RUN SERIES 23, LOG 23.1.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH ACTUATOR FAILURES INBOARD ON NO 4 ENGINE AT 1.6 DEGREES
ROW L GAGES BETWEEN ENGINE 4 AND 5

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	5	0.035	0.005	0.006	0.002	0.042
P006	4	0.028	0.003	0.004	0.002	0.034
QK01	4	7.510	2.009	2.513	1.257	11.280
QK02	4	3.097	0.377	0.471	0.236	3.804
QK03	6	5.467	0.820	0.943	0.385	6.622
QK04	6	3.822	0.936	1.077	0.440	5.141
QK05	5	2.600	0.260	0.309	0.138	3.015
QK06	4	1.604	0.601	0.752	0.376	2.732
QL02	4	5.852	3.105	3.884	1.942	11.678
QL03	5	3.830	1.578	1.875	0.839	6.346
QL04	5	2.324	0.552	0.656	0.293	3.203
QL05	5	1.267	0.685	0.814	0.364	2.359
QL06	5	1.402	0.084	0.100	0.045	1.537
QM01	4	2.877	0.471	0.590	0.295	3.762
QM02	5	6.044	4.788	5.687	2.543	13.674
QM03	6	5.018	1.763	2.027	0.828	7.501
QM04	6	3.555	0.972	1.118	0.456	4.924
QM05	5	3.306	0.872	1.036	0.463	4.696
QM06	5	2.546	0.954	1.134	0.507	4.067
Q003	6	6.538	1.345	1.547	0.631	8.433
Q004	1	5.750	0.0	0.0	0.0	5.750
Q016	3	2.383	0.487	0.671	0.387	3.546
Q017	5	0.882	0.206	0.244	0.109	1.210
Q024	5	0.130	0.052	0.062	0.028	0.213

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.1.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH ACTUATOR FAILURES INBOARD ON NO 4 ENGINE AT 1.6 DEGREES
ROW L GAGES BETWEEN ENGINE 4 AND 5

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q024R	1	0.001	0.0	0.0	0.0	0.001
Q025	3	0.143	0.121	0.167	0.097	0.433
Q044	5	0.127	0.018	0.022	0.010	0.156

CASE ---------- RUN SERIES 23, LOG 23.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER NOZZLE WALL ENVIRONMENT WITH SINGLE ACTUATOR FAILURE INBOARD.
NOTE: QK03 AND QK04 RUN 629 RESULTS QUESTIONABLE SINCE OSCILLOSCOPE TRACE EITHER COINCIDES OR OFF SCALE. M GAGES AT 315, L AT 292.5, K AT 270 DEGREES.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	5	0.033	0.004	0.004	0.002	0.039
P006	6	0.029	0.004	0.004	0.002	0.034
QK01	3	35.333	1.835	2.529	1.460	39.714
QK02	4	14.625	0.873	1.092	0.546	16.263
QK03	6	5.825	1.924	2.213	0.903	8.535
QK04	6	3.532	0.636	0.731	0.299	4.427
QK05	5	2.702	0.119	0.141	0.063	2.891
QK06	5	2.110	0.324	0.385	0.172	2.626
QL02	8	10.714	2.252	2.493	0.881	13.358
QL04	4	6.525	1.907	2.386	1.193	10.104
QL04	5	4.342	0.342	0.406	0.182	4.887
QL05	5	2.662	0.126	0.150	0.067	2.863
QL06	6	1.883	0.420	0.483	0.197	2.475
QM01	7	14.977	13.245	14.902	5.632	31.875
QM02	8	9.530	3.996	4.425	1.564	14.223
QM03	7	6.454	1.056	1.188	0.449	7.802
QM04	7	5.014	0.908	1.021	0.386	6.172
QM05	6	3.413	0.373	0.429	0.175	3.939
QM06	6	2.458	0.354	0.407	0.166	2.957
Q003	6	7.387	1.133	1.303	0.532	8.982
Q004	6	6.022	0.782	0.900	0.367	7.124
Q008	7	12.386	1.113	1.252	0.473	13.805
Q009	5	9.190	0.332	0.394	0.176	9.719
Q010	2	4.865	0.865	1.529	1.081	8.109

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER NOZZLE WALL ENVIRONMENT WITH SINGLE ACTUATOR FAILURE INBOARD.
NOTE: QK03 AND QK04 RUN 629 RESULTS QUESTIONABLE SINCE OSCILLOSCOPE TRACE EITHER COINCIDES OR OFF SCALE. M GAGES AT 315, L AT 292.5, K AT 270 DEGREES.

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q016	6	3.590	0.410	0.471	0.192	4.167
Q017	6	2.740	0.607	0.698	0.285	3.595
Q044	1	0.032	0.0	0.0	0.0	0.032

CASE ---------- RUN SERIES 23, LOG 23.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD AT 0.9 DEG

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	4	0.030	0.002	0.003	0.001	0.034
P006	3	0.027	0.001	0.002	0.001	0.030
QK01	5	2.682	0.703	0.835	0.374	3.803
QK02	5	2.598	0.857	1.019	0.455	3.964
QK03	5	2.854	0.866	1.029	0.460	4.235
QK04	5	2.428	0.609	0.724	0.324	3.399
QK05	3	2.320	0.180	0.247	0.143	2.749
QK06	3	1.587	0.427	0.588	0.340	2.605
QL02	5	2.010	0.313	0.372	0.167	2.510
QL03	4	2.357	0.366	0.458	0.229	3.045
QL04	3	1.940	0.212	0.293	0.169	2.447
QL05	5	1.584	0.298	0.354	0.158	2.059
QL06	3	1.253	0.245	0.338	0.195	1.838
QM01	4	1.649	0.526	0.659	0.329	2.637
QM02	4	2.817	0.411	0.515	0.257	3.590
QM03	5	3.930	0.687	0.816	0.365	5.025
QM04	3	3.593	0.784	1.080	0.624	5.464
QM05	5	2.968	0.881	1.046	0.468	4.371
QM06	5	2.598	0.809	0.961	0.430	3.887
Q003	4	5.907	1.135	1.419	0.710	8.037
Q004	4	6.047	1.071	1.340	0.670	8.058
Q008	4	6.072	1.304	1.631	0.816	8.520
Q009	3	6.410	1.196	1.648	0.952	9.265
Q016	4	2.782	0.323	0.403	0.202	3.388

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD AT 0.9 DEG

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q017	4	1.777	0.312	0.390	0.195	2.363
Q025	1	0.044	0.0	0.0	0.0	0.044

CASE ---------- RUN SERIES 23, LOG 23.4

GIMBAL PATTERN --- 11 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD ON ENGINE NO 4 AT 6 DEGREES
NOTE THAT ALL THE HEATING RATES ON RUN 697 ARE LOW IN COMPARISON WITH OTHER RUNS

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	1	0.070	0.0	0.0	0.0	0.070
QK01	5	82.020	12.278	14.586	6.523	101.589
QK02	6	26.350	2.645	3.042	1.242	30.076
QK03	6	7.008	1.511	1.738	0.710	9.137
QK04	6	2.320	0.457	0.525	0.214	2.963
QK05	5	1.316	0.071	0.084	0.038	1.429
QL01	6	22.983	1.720	1.978	0.808	25.406
QL02	6	13.617	1.331	1.531	0.625	15.492
QL03	6	4.867	0.776	0.893	0.364	5.960
QL04	6	1.933	0.236	0.271	0.111	2.265
QL05	6	1.275	0.306	0.352	0.144	1.706
QM01	6	4.827	0.758	0.872	0.356	5.895
QM02	6	4.837	0.485	0.558	0.228	5.520
QM03	6	3.192	0.239	0.275	0.112	3.528
QM04	6	2.210	0.229	0.264	0.108	2.533
QM05	6	1.578	0.207	0.238	0.097	1.869
Q008	6	7.083	2.400	2.760	1.127	10.464
Q009	4	7.775	0.955	1.195	0.597	9.567
Q010	6	10.867	1.228	1.413	0.577	12.597
Q011	5	12.060	0.695	0.825	0.369	13.167
Q013	6	14.300	1.599	1.839	0.751	16.552
Q014	6	24.333	2.687	3.090	1.262	28.118
Q015	6	15.733	2.243	2.580	1.053	18.893
Q016	6	6.950	0.386	0.444	0.181	7.494

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.4

GIMBAL PATTERN --- 11 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD ON ENGINE NO 4 AT 6 DEGREES
NOTE THAT ALL THE HEATING RATES ON RUN 697 ARE LOW IN COMPARISON WITH OTHER RUNS

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA						
Q017	6	2.027	0.439	0.505	0.206	2.645
Q025	6	0.163	0.063	0.072	0.029	0.251

CASE ---------- RUN SERIES 23, LOG 23.5

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE -------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH TRANSIENT GIMBAL PATTERN DURING SEPARATION

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	3	0.039	0.002	0.003	0.002	0.044
P022	3	3.643	0.127	0.174	0.101	3.945
P023	3	3.957	0.135	0.186	0.107	4.278
QK01	2	31.900	3.000	5.303	3.750	43.150
QK02	2	18.550	1.050	1.856	1.313	22.488
QK03	3	8.357	0.392	0.540	0.312	9.292
QK04	3	3.620	0.172	0.237	0.137	4.031
QK05	2	1.975	0.105	0.186	0.131	2.369
QL02	2	11.300	0.101	0.178	0.126	11.678
QL03	3	6.747	0.227	0.312	0.180	7.288
QL04	3	3.200	0.078	0.107	0.062	3.386
QL05	3	2.053	0.029	0.040	0.023	2.122
QM01	3	6.133	0.312	0.430	0.248	6.878
QM02	3	4.153	0.049	0.068	0.039	4.271
QM03	3	4.083	0.327	0.451	0.260	4.865
QM04	3	2.260	0.128	0.177	0.102	2.566
QM05	3	2.167	0.083	0.115	0.066	2.366
Q008	3	2.193	0.368	0.507	0.293	3.072
Q010	3	3.177	0.579	0.798	0.461	4.559
Q014	3	11.600	0.993	1.369	0.790	13.971
Q015	3	5.077	0.878	1.210	0.699	7.172
Q016	3	4.620	0.368	0.507	0.293	5.498
Q025	3	0.086	0.007	0.010	0.006	0.102
Q062	2	184.500	7.501	13.260	9.376	212.629

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.5

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH TRANSIENT GIMBAL PATTERN DURING SEPARATION

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
Q063	3	198.000	2.167	2.986	1.724	203.171

CASE ---------- RUN SERIES 23, LOG 23.6

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 465.0 PSIA INTERSTAGE -------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEG AND LOW PC OF 465 PSIA

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	6	0.031	0.003	0.003	0.001	0.035
P022	8	2.310	0.228	0.253	0.089	2.578
P023	9	2.319	0.148	0.162	0.054	2.481
QK01	9	25.300	1.678	1.836	0.612	27.136
QK02	9	13.544	1.147	1.255	0.418	14.799
QK03	4	6.042	0.269	0.336	0.168	6.547
QK04	8	2.510	0.178	0.197	0.070	2.719
QK05	9	1.360	0.101	0.111	0.037	1.471
QL02	9	8.524	0.628	0.687	0.229	9.211
QL03	9	4.551	0.362	0.396	0.132	4.947
QL04	9	2.072	0.348	0.381	0.127	2.453
QL05	8	1.401	0.084	0.093	0.033	1.500
QM01	9	4.110	0.720	0.787	0.262	4.897
QM02	9	2.811	0.408	0.447	0.149	3.258
QM03	9	2.694	0.270	0.295	0.098	2.990
QM04	9	1.783	0.108	0.118	0.039	1.902
QM05	9	1.590	0.112	0.122	0.041	1.712
Q008	8	1.620	0.167	0.185	0.065	1.816
Q010	7	1.829	0.167	0.188	0.071	2.042
Q014	9	8.211	1.358	1.485	0.495	9.696
Q015	8	3.140	0.234	0.259	0.092	3.415
Q016	9	3.467	0.484	0.530	0.177	3.996
Q025	7	0.049	0.018	0.021	0.008	0.072
Q062	9	137.555	11.286	12.345	4.115	149.900

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.6

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 465.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEG AND LOW PC OF 465 PSIA

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
Q063	9	146.222	10.862	11.880	3.960	158.102

CASE ---------- RUN SERIES 23, LOG 23.7

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 215.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEGREES INBOARD AND NOMINAL CHAMBER PRESSURE OF 215 PSIA

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	5	0.016	0.001	0.002	0.001	0.019
P022	5	1.156	0.260	0.309	0.138	1.570
P023	5	1.162	0.082	0.097	0.043	1.292
QK01	5	13.120	0.349	0.414	0.185	13.676
QK02	5	6.494	0.364	0.433	0.193	7.074
QK03	3	2.607	0.230	0.317	0.183	3.156
QK04	5	1.186	0.152	0.181	0.081	1.428
QK05	5	0.680	0.058	0.068	0.031	0.772
QL01	4	6.070	0.230	0.288	0.144	6.502
QL02	5	4.312	0.165	0.196	0.088	4.575
QL03	4	2.555	0.172	0.215	0.108	2.878
QL04	4	1.270	0.107	0.133	0.067	1.470
QL05	4	0.892	0.098	0.122	0.061	1.076
QM01	5	1.204	0.619	0.735	0.329	2.190
QM02	5	1.198	0.254	0.302	0.135	1.603
QM03	5	1.260	0.087	0.103	0.046	1.399
QM04	3	0.863	0.012	0.017	0.010	0.893
QM05	5	0.644	0.115	0.137	0.061	0.828
Q008	5	0.858	0.063	0.075	0.033	0.958
Q010	5	0.818	0.084	0.099	0.044	0.951
Q014	5	2.556	0.351	0.417	0.186	3.115
Q015	5	2.170	0.209	0.248	0.111	2.503
Q016	5	1.588	0.488	0.580	0.259	2.366
Q025	4	0.014	0.001	0.001	0.001	0.017

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.7

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 215.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEGREES INBOARD AND NOMINAL CHAMBER PRESSURE OF 215 PSIA

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA						
Q062	4	89.750	3.421	4.279	2.140	96.169
Q063	5	79.400	3.137	3.727	1.667	84.400

CASE ---------- RUN SERIES 24, LOG 24.1.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE THRUST CONE RADIATIVE HEATING.
FLOW-SYMMETRY NOZZLES USED IN THIS TEST
P20,21 ENGINE NO 1, P22,23 ENGINE NO 2, P29 ENGINE NO 5

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P020	3	3.917	0.055	0.076	0.044	4.050
P021	3	3.973	0.046	0.063	0.036	4.082
P022	3	4.572	0.261	0.360	0.208	5.195
P023	3	4.235	0.088	0.121	0.070	4.444
P029	3	4.384	0.167	0.231	0.133	4.783
Q022	3	0.011	0.003	0.004	0.002	0.018
Q023	3	0.067	0.010	0.014	0.008	0.091
Q024	3	0.113	0.011	0.015	0.009	0.139
Q024R	2	0.006	0.005	0.008	0.006	0.023
Q025	3	0.216	0.009	0.012	0.007	0.237
Q030	2	0.016	0.005	0.008	0.006	0.033
Q031	3	0.044	0.004	0.005	0.003	0.053
Q032	3	0.070	0.008	0.011	0.007	0.090
Q033	3	0.015	0.012	0.016	0.010	0.044
Q044	3	0.140	0.010	0.013	0.008	0.163

CASE ---------- RUN SERIES 25, LOG 25.1

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: HEAT SHIELD PRESSURES WITH ENGINE DEFLECTIONS.
DEFLECTION PATTERN ROTATED 180 DEGREES

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			PSIA			
P001	3	0.066	0.007	0.010	0.006	0.083
P002	2	0.056	0.002	0.004	0.003	0.065
P003	3	0.094	0.010	0.013	0.008	0.117
P005	2	0.065	0.005	0.009	0.007	0.085
P006	3	0.063	0.008	0.012	0.007	0.083
P007	3	0.035	0.001	0.001	0.001	0.037
P008	2	0.033	0.002	0.004	0.003	0.041
P011	3	0.066	0.003	0.005	0.003	0.074

CASE ---------- RUN SERIES 25, LOG 25.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: HEAT SHIELD PRESSURES WITH ENGINE DEFLECTIONS.
DEFLECTION PATTERN ROTATED 180 DEGREES

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			PSIA			
P001	1	0.044	0.0	0.0	0.0	0.044
P002	3	0.050	0.003	0.004	0.002	0.056
P003	3	0.038	0.003	0.004	0.002	0.045
P005	3	0.037	0.002	0.002	0.001	0.040
P006	3	0.033	0.001	0.002	0.001	0.036
P007	3	0.045	0.008	0.012	0.007	0.065
P008	3	0.031	0.000	0.000	0.000	0.031
P011	1	0.035	0.0	0.0	0.0	0.035

CASE ---------- RUN SERIES 26, LOG 26.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE HEATING RATES
SKIRT GAGES MOUNTED ON ENGINE NO 5

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	5	0.029	0.002	0.003	0.001	0.033
P006	4	0.021	0.003	0.003	0.002	0.027
QK01	6	1.631	0.376	0.433	0.177	2.161
QK02	6	1.650	0.549	0.632	0.258	2.424
QK03	3	2.114	0.118	0.162	0.094	2.395
QK04	3	1.687	0.151	0.208	0.120	2.047
QK05	5	1.547	0.407	0.483	0.216	2.195
QK06	4	1.066	0.126	0.157	0.079	1.302
QL01	3	0.952	0.250	0.344	0.199	1.549
QL02	2	0.773	0.100	0.176	0.124	1.147
QL03	5	1.549	0.192	0.228	0.102	1.855
QL04	5	1.599	0.274	0.326	0.146	2.037
QL05	5	1.388	0.474	0.563	0.252	2.144
QL06	4	1.060	0.060	0.075	0.037	1.173
QM01	5	2.085	0.530	0.630	0.282	2.930
QM02	5	2.026	0.779	0.926	0.414	3.268
QM03	6	3.252	1.181	1.359	0.555	4.916
QM04	1	3.060	0.0	0.0	0.0	3.060
QM05	5	2.382	0.826	0.982	0.439	3.699
QM06	4	1.868	0.603	0.755	0.377	3.001
Q003	1	4.600	0.0	0.0	0.0	4.600
Q004	1	5.650	0.0	0.0	0.0	5.650
Q008	1	5.730	0.0	0.0	0.0	5.730
Q016	1	2.680	0.0	0.0	0.0	2.680

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 26, LOG 26.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE HEATING RATES
SKIRT GAGES MOUNTED ON ENGINE NO 5

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA						
Q017	1	2.220	0.0	0.0	0.0	2.220
Q025	1	0.140	0.0	0.0	0.0	0.140

CASE ---------- RUN SERIES 26, LOG 26.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE WALL HEATING RATES.
SKIRT GAGES MOUNTED ON NO 4 ENGINE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	3	0.043	0.015	0.020	0.012	0.079
P006	5	0.031	0.008	0.009	0.004	0.044
QK01	5	0.801	0.148	0.176	0.079	1.037
QK02	5	0.815	0.110	0.130	0.058	0.990
QK03	4	0.722	0.110	0.138	0.069	0.929
QK04	4	0.786	0.105	0.132	0.066	0.984
QK05	4	1.366	0.107	0.134	0.067	1.567
QK06	5	0.837	0.096	0.114	0.051	0.989
QL01	2	0.413	0.026	0.046	0.033	0.511
QL02	3	0.660	0.003	0.004	0.002	0.667
QL03	4	0.823	0.247	0.309	0.154	1.287
QL04	4	0.896	0.106	0.132	0.066	1.094
QL05	5	0.790	0.232	0.275	0.123	1.160
QL06	5	0.744	0.322	0.383	0.171	1.257
QM01	5	0.480	0.025	0.030	0.013	0.520
QM02	5	0.915	0.177	0.211	0.094	1.197
QM03	5	1.418	0.401	0.476	0.213	2.057
QM04	4	1.537	0.163	0.204	0.102	1.844
QM05	5	1.242	0.352	0.418	0.187	1.802
QM06	5	1.094	0.245	0.291	0.130	1.484
Q003	5	5.268	0.829	0.985	0.440	6.589
Q004	5	5.488	0.463	0.550	0.246	6.226
Q008	2	5.920	0.450	0.795	0.562	7.607
Q009	3	6.300	0.829	1.142	0.659	8.278

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 26, LOG 26.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE WALL HEATING RATES.
SKIRT GAGES MOUNTED ON NO 4 ENGINE

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q010	5	3.782	0.769	0.913	0.408	5.007
Q014	5	1.955	0.232	0.276	0.123	2.325
Q025	5	0.172	0.025	0.030	0.013	0.212

CASE ---------- RUN SERIES 27, LOG 27.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NOZZLE ENVIRONMENT WITH ACTUATOR FAILURES INBOARD. SKIRT GAGES MOUNTED ON ENGINE NO 4.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	3	0.031	0.001	0.002	0.001	0.034
P006	3	0.030	0.001	0.002	0.001	0.034
QK01	3	0.891	0.111	0.153	0.088	1.156
QK02	3	0.820	0.198	0.273	0.158	1.293
QK03	3	0.726	0.158	0.218	0.126	1.103
QK04	3	0.778	0.152	0.209	0.121	1.141
QK05	3	0.947	0.212	0.293	0.169	1.454
QK06	3	1.065	0.224	0.309	0.178	1.600
QL02	3	0.626	0.045	0.062	0.036	0.733
QL03	3	0.735	0.032	0.044	0.026	0.812
QL04	2	0.882	0.013	0.022	0.016	0.929
QL05	3	0.790	0.033	0.045	0.026	0.868
QL06	3	0.892	0.037	0.051	0.029	0.980
QM01	3	0.530	0.059	0.081	0.047	0.671
QM02	3	1.210	0.078	0.107	0.062	1.396
QM03	3	1.750	0.203	0.280	0.162	2.235
QM04	3	1.743	0.125	0.172	0.099	2.041
QM05	3	1.503	0.098	0.135	0.078	1.737
QM06	2	1.392	0.022	0.039	0.028	1.475
Q003	3	6.833	0.381	0.524	0.303	7.742
Q004	3	6.357	0.325	0.448	0.259	7.133
Q008	3	7.100	2.054	2.830	1.634	12.001
Q009	2	7.485	0.245	0.433	0.306	8.404
Q010	2	2.705	0.455	0.804	0.569	4.411

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NOZZLE ENVIRONMENT WITH ACTUATOR FAILURES INBOARD. SKIRT GAGES MOUNTED ON ENGINE NO 4.

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q014	2	1.885	0.125	0.221	0.156	2.354
Q025	3	0.199	0.049	0.068	0.039	0.317

CASE ---------- RUN SERIES 27, LOG 27.2.1

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 4 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	3	0.035	0.000	0.001	0.000	0.036
P006	3	0.032	0.001	0.002	0.001	0.035
QK01	3	1.073	0.132	0.182	0.105	1.389
QK02	2	1.130	0.250	0.442	0.313	2.068
QK03	2	1.065	0.165	0.292	0.206	1.684
QK04	2	1.120	0.150	0.265	0.187	1.682
QK05	3	1.403	0.111	0.153	0.088	1.668
QK06	3	1.357	0.070	0.097	0.056	1.525
QL02	3	0.667	0.059	0.081	0.047	0.808
QL03	2	0.710	0.080	0.141	0.100	1.010
QL04	3	0.733	0.172	0.237	0.137	1.144
QL05	3	1.060	0.304	0.419	0.242	1.786
QL06	3	1.010	0.029	0.041	0.023	1.080
QM01	3	0.337	0.092	0.126	0.073	0.556
QM02	3	0.780	0.227	0.313	0.180	1.321
QM03	3	1.197	0.262	0.362	0.209	1.823
QM04	3	1.250	0.174	0.239	0.138	1.665
QM05	3	1.103	0.172	0.237	0.137	1.514
QM06	2	1.110	0.070	0.124	0.087	1.372
Q003	2	7.725	0.175	0.309	0.219	8.381
Q004	3	6.620	0.940	1.296	0.748	8.864
Q008	2	11.600	0.600	1.061	0.750	13.850
Q009	3	9.997	1.140	1.571	0.907	12.718
Q010	3	2.367	0.128	0.177	0.102	2.672

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.2.1

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 4 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q014	2	5.095	0.365	0.645	0.456	6.464
Q025	3	0.207	0.021	0.029	0.017	0.257

CASE ---------- RUN SERIES 27. LOG 27.2.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 1 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	2	0.038	0.003	0.005	0.004	0.049
P006	3	0.031	0.002	0.002	0.001	0.035
P006	3	0.031	0.002	0.002	0.001	0.035
QK01	3	1.367	0.033	0.045	0.026	1.445
QK02	3	1.607	0.078	0.107	0.062	1.792
QK03	3	1.283	0.095	0.130	0.075	1.509
QK04	3	1.300	0.104	0.144	0.083	1.549
QK05	2	1.455	0.145	0.256	0.181	1.999
QK06	2	1.800	0.060	0.106	0.075	2.025
QL03	2	4.435	0.155	0.274	0.194	5.016
QL04	2	4.415	0.115	0.203	0.144	4.846
QL05	2	4.035	0.225	0.398	0.281	4.879
QL06	2	3.210	0.090	0.159	0.112	3.547
QM01	2	0.970	0.010	0.018	0.012	1.007
QM02	3	2.203	0.282	0.389	0.224	2.877
QM03	3	3.120	0.374	0.516	0.298	4.013
QM04	3	3.170	0.276	0.380	0.220	3.829
QM05	1	4.230	0.0	0.0	0.0	4.230
QM06	2	3.745	0.255	0.451	0.319	4.701
Q010	2	3.870	0.150	0.265	0.187	4.432
Q013	3	5.217	0.302	0.416	0.240	5.937
Q014	3	2.783	0.584	0.805	0.465	4.177
Q015	3	6.333	1.225	1.688	0.974	9.257
Q019	3	3.263	0.409	0.564	0.326	4.240

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.2.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 1 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q025	3	0.081	0.011	0.016	0.009	0.108

CASE ---------- RUN SERIES 27, LOG 27.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE WALL ENVIRONMENT WITH ACTUATOR FAILURES.
SKIRT GAGES ON NOZZLE 4.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
			(Q) IN BTU/SQ-FT-SEC,(P) IN PSIA			
P005	4	0.046	0.027	0.034	0.017	0.097
P006	3	0.037	0.008	0.011	0.006	0.055
QK01	4	0.768	0.320	0.401	0.200	1.370
QK02	4	1.054	0.363	0.455	0.227	1.736
QK03	4	0.742	0.347	0.434	0.217	1.392
QK04	4	0.722	0.251	0.313	0.157	1.193
QK05	4	1.070	0.300	0.376	0.188	1.633
QK06	3	0.762	0.179	0.247	0.143	1.190
QL02	4	0.749	0.346	0.433	0.216	1.398
QL03	4	0.657	0.262	0.328	0.164	1.149
QL04	3	0.801	0.177	0.243	0.140	1.222
QL05	4	0.956	0.180	0.225	0.113	1.294
QL06	4	1.000	0.194	0.243	0.122	1.365
QM01	4	0.637	0.337	0.421	0.211	1.268
QM02	4	0.990	0.414	0.518	0.259	1.767
QM03	4	1.685	0.070	0.087	0.044	1.816
QM04	4	1.709	0.470	0.588	0.294	2.592
QM05	3	1.310	0.144	0.199	0.115	1.655
QM06	2	1.245	0.095	0.168	0.119	1.601
Q003	3	4.650	1.164	1.604	0.926	7.428
Q004	4	5.952	1.275	1.595	0.798	8.345
Q008	3	4.997	1.491	2.055	1.186	8.556
Q009	3	7.067	0.272	0.375	0.216	7.716
Q010	3	3.360	0.580	0.800	0.462	4.745

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE WALL ENVIRONMENT WITH ACTUATOR FAILURES.
SKIRT GAGES ON NOZZLE 4.

(CONTINUED FROM PREVIOUS PAGE)

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC,(P) IN PSIA				
Q014	4	1.895	0.277	0.346	0.173	2.414
Q025	2	0.140	0.095	0.168	0.119	0.497

CASE ---------- RUN SERIES 28, LOG 28.1

GIMBAL PATTERN --- 2B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: ENVIRONMENT OF THE INOPERATIVE OUTBOARD ENGINE WITH THE INOPERATIVE ENGINE DEFLECTED. DOUBTFUL WHETHER ENGINE WAS DEFLECTED DURING THE TEST.

SUMMARY OF STATISTICAL ANALYSIS OF NORMALIZED DATA

TRANSDUCER ID	NO. OF SAMPLES	SAMPLE MEAN	STANDARD DEVIATION SMPL	STANDARD DEVIATION UNIV	STANDARD DEVIATION MEAN	SAMPLE MEAN + 3(ST DEV MEAN)
		(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	3	0.011	0.001	0.002	0.001	0.014
P006	3	0.020	0.014	0.019	0.011	0.052
QK01	4	0.507	0.020	0.026	0.013	0.546
QK02	3	0.563	0.066	0.091	0.053	0.721
QK03	5	0.474	0.094	0.112	0.050	0.624
QK04	5	0.440	0.119	0.141	0.063	0.629
QK05	4	0.517	0.100	0.126	0.063	0.706
QK06	4	0.607	0.117	0.147	0.073	0.828
QL02	4	0.425	0.099	0.123	0.062	0.610
QL03	5	0.578	0.104	0.123	0.055	0.743
QL04	5	0.506	0.155	0.184	0.082	0.752
QL05	5	0.644	0.188	0.223	0.100	0.943
QL06	5	0.784	0.227	0.270	0.121	1.146
QM01	5	0.266	0.057	0.068	0.031	0.358
QM02	5	0.239	0.084	0.100	0.045	0.373
QM03	5	0.306	0.017	0.021	0.009	0.334
QM04	5	0.325	0.018	0.021	0.010	0.354
QM05	5	0.384	0.055	0.065	0.029	0.471
QM06	5	0.422	0.054	0.064	0.029	0.508
QN01	1	0.015	0.0	0.0	0.0	0.015
QN03	3	0.038	0.000	0.001	0.000	0.039
Q009	5	7.016	0.769	0.913	0.408	8.241
Q015	3	6.577	1.139	1.570	0.906	9.296
Q025	1	0.018	0.0	0.0	0.0	0.018

3.0 TABULATIONS OF NORMALIZED TEST DATA

During the test program, it was intended to hold the chamber pressure and mixture ratio for each set of runs at a constant value. However, due to practical limitations, some variation of the measured chamber pressure occurred from run to run. Therefore, in the analysis of the model data, the test values are first normalized to the nominal chamber pressure value using the experimentally and analytically determined correlations, i.e.,

$$P_b \sim P_c$$

$$q \sim P_c$$

The following notation is used in the test data tabulation of this section.

PC	Chamber Pressure
ALT	Altitude corresponding to test chamber pressure
PO2	Oxygen charge tube pressure
PH2	Hydrogen charge tube pressure
TO2	Oxygen charge tube temperature
TH2	Hydrogen charge tube temperature
DO2	Oxygen charge tube venturi diameter
DH2	Hydrogen charge tube venturi diameter

A summary of all the test cases run during this test program, and presented in this section, is given in Table 5-1, Volume I.

CASE ---------- RUN SERIES C01, LOG C01

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: PRELIMINARY CHECKOUT FOR COMPARISON WITH PREVIOUS CAL RESULTS

NORMALIZED TEST DATA

RUN NUMBER	1	2	3	4	5	7	8	9	11	12	13
PC (PSIA)	642.0	631.0	672.0	687.0	670.0	721.0	705.0	-----	678.0	629.0	640.0
ALT (MU HG A)	27.0	30.0	18.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1040.0	1040.0	1055.0	1055.0	1040.0	1040.0	1040.0	1015.0	1015.0	1015.0	1015.0
PH2 (PSIA)	1040.0	1040.0	1055.0	1055.0	1040.0	1040.0	1040.0	1015.0	1015.0	1015.0	1015.0
TO2 (F)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

TRANSDUCER OUTPUT
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA

TRANSDUCER ID											
P007	0.030	-----	-----	-----	-----	-----	0.023	0.018	0.024	0.024	0.034
P011	0.025	-----	-----	-----	-----	-----	0.030	0.022	0.027	-----	0.019
P015	-----	-----	-----	-----	0.001	0.001	-----	-----	-----	-----	-----
P017	-----	-----	-----	-----	0.003	0.004	-----	-----	-----	-----	-----
Q001	1.850	-----	-----	-----	-----	-----	2.140	1.300	1.180	1.590	1.520
Q002	-----	-----	-----	-----	-----	-----	3.290	1.320	2.200	2.230	3.180
Q003	3.110	-----	-----	4.180	5.180	4.170	4.720	3.640	-----	-----	-----
Q004	-----	-----	-----	-----	-----	-----	4.970	5.030	-----	-----	-----
Q008	-----	-----	-----	-----	-----	-----	-----	-----	2.840	3.820	-----
Q020	-----	-----	-----	-----	0.008	0.005	-----	-----	-----	-----	-----
Q021	-----	-----	-----	0.007	0.010	0.004	-----	-----	-----	-----	-----
Q022	-----	0.016	-----	0.016	0.018	0.017	-----	-----	-----	-----	-----
Q023	-----	0.032	0.049	0.054	0.058	0.054	0.070	0.057	-----	-----	-----
Q024	-----	-----	0.080	0.085	0.096	0.093	0.099	0.091	-----	-----	-----
Q025	-----	-----	-----	0.208	0.186	0.190	0.226	0.188	0.211	0.251	0.197

CASE ---------- RUN SERIES C03, LOG C03.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE MODEL OPERATION WITH VARIABLE O/F RATIO

NORMALIZED TEST DATA

RUN NUMBER	44	46	49	51	52	53
PC (PSIA)	621.0	660.0	637.0	655.0	645.0	661.0
ALT (MU HG A)	27.0	27.0	30.0	25.0	18.0	27.0
PO2 (PSIA)	1280.0	1280.0	1230.0	1280.0	1280.0	1280.0
PH2 (PSIA)	1315.0	1315.0	1295.0	1315.0	1315.0	1315.0
TO2 (F)	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
P007	-----	-----	0.032	-----	-----	0.018
P011	-----	0.020	0.021	0.023	-----	0.019
P015	-----	-----	0.001	-----	0.002	0.003
P017	-----	-----	-----	0.002	0.001	0.002
Q008	-----	-----	2.699	-----	-----	-----
Q024	-----	-----	0.075	0.096	0.109	0.118
Q025	-----	-----	0.108	0.254	0.220	0.259

CASE ---------- RUN SERIES C03, LOG C03.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE MODEL OPERATION WITH VARIABLE O/F RATIO

NORMALIZED TEST DATA

RUN NUMBER	54	55	56	57	58	60	61	62
PC (PSIA)	651.0	575.0	574.0	567.0	568.0	545.0	522.0	603.0
ALT (MU HG A)	15.0	20.0	27.0	29.0	25.0	27.0	25.0	26.0
PO2 (PSIA)	1230.0	1130.0	1030.0	1030.0	1030.0	1030.0	1030.0	1030.0
PH2 (PSIA)	1415.0	1305.0	1190.0	1190.0	1190.0	1190.0	1190.0	1190.0
TO2 (F)	-----	-----	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC (P) IN PSIA							
P007	0.015	-----	0.010	0.013	-----	-----	0.012	0.010
P011	-----	0.001	0.002	0.002	-----	-----	-----	0.001
P015	-----	0.001	0.002	0.002	-----	0.001	-----	0.001
P017	-----	0.001	-----	-----	-----	-----	-----	0.001
Q007	-----	-----	-----	1.736	-----	-----	-----	1.594
Q008	-----	-----	-----	-----	-----	-----	-----	1.467
Q024	0.029	-----	0.088	0.087	0.066	0.058	0.081	0.057
Q025	0.037	0.148	0.159	0.165	0.127	0.158	0.317	0.129

CASE ---------- RUN SERIES C03, LOG C03.3

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE MODEL OPERATION WITH VARIABLE O/F RATIO

NORMALIZED TEST DATA

RUN NUMBER	64	65	66	67	68	69	70	71
PC (PSIA)	666.0	696.0	-----	710.0	731.0	720.0	714.0	743.0
ALT (MU HG A)	24.0	29.0	28.0	26.0	25.0	27.0	27.0	24.0
PO2 (PSIA)	1330.0	1380.0	1380.0	1380.0	1380.0	1380.0	1365.0	1365.0
PH2 (PSIA)	1260.0	1310.0	1310.0	1310.0	1310.0	1310.0	1295.0	1295.0
TO2 (F)	-----	-----	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA							
P007	-----	-----	0.034	-----	0.026	-----	0.024	0.031
P011	0.027	0.037	0.048	-----	0.032	-----	0.034	0.027
P015	0.003	0.002	0.001	0.002	0.002	0.001	0.002	-----
P017	-----	0.002	0.001	0.002	0.002	-----	0.002	-----
Q007	-----	-----	3.380	3.132	2.670	3.327	2.644	-----
Q008	-----	-----	-----	-----	-----	-----	1.412	2.377
Q025	0.243	0.175	0.241	0.234	0.209	0.183	0.140	0.250

CASE ---------- RUN SERIES C04, LOG C04.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE FLOW SYMMETRY AT NOZZLE EXITS

NORMALIZED TEST DATA

RUN NUMBER	325	326	450	451	452	453
PC (PSIA)	634.0	610.0	610.0	603.0	615.0	629.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	153.0	170.0	165.0	163.0	166.0	166.0
TH2 (F)	134.0	140.0	156.0	152.0	156.0	156.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN (PSIA)					
P020	3.319	3.222	3.564	3.584	3.566	3.326
P021	3.339	2.994	3.492	3.574	3.556	3.326
P022	3.130	2.849	3.554	3.385	3.484	3.456
P023	3.140	3.119	3.036	3.375	3.792	3.657
P024	2.951	2.818	3.751	3.679	3.001	3.617
P025	2.791	2.746	3.978	3.647	3.206	3.326
P026	3.230	3.129	3.378	3.301	3.720	3.416
P027	3.529	3.616	3.626	3.480	3.658	3.396
P028	3.300	2.911	3.958	3.689	4.111	3.617
P029	3.359	3.274	3.719	3.511	3.936	3.336
Q060	213.325	-----	237.259	230.580	238.413	228.083
Q061	-----	121.220	170.951	191.801	196.280	198.944
Q062	99.685	123.292	-----	216.955	-----	-----
Q063	162.486	153.338	-----	-----	220.943	249.183
Q064	172.454	173.023	180.275	195.993	-----	-----
Q065	-----	-----	-----	-----	171.616	192.916
Q066	-----	-----	347.082	325.957	-----	-----
Q067	195.382	-----	-----	-----	288.767	357.698
Q068	161.489	167.843	200.997	189.705	191.141	204.973

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES C04, LOG C04.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE FLOW SYMMETRY AT NOZZLE EXITS

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	325	326	450	451	452	453
PC (PSIA)	634.0	610.0	610.0	603.0	615.0	629.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	153.0	170.0	165.0	163.0	166.0	166.0
TH2 (F)	134.0	140.0	156.0	152.0	156.0	156.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN (PSIA)					
Q069	138.562	-----	241.403	248.398	265.132	267.269

CASE ---------- RUN SERIES C04, LOG C04.3

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE FLOW SYMMETRY AND EFFECT OF NOZZLE ENTRANCE AREA. SPECIAL LARGE DIAMETER PASSAGE TO NOZZLE THROAT ON NOZZLE 1 (RUNS 577 AND 578), NOZZLE 5 (RUNS 579 AND 580), NOZZLE 3 (RUNS 581 AND 582)

NORMALIZED TEST DATA

RUN NUMBER	577	578	579	580	581	582
PC (PSIA)	610.0	615.0	626.0	615.0	610.0	621.0
ALT (MU HG A)	35.0	27.0	29.0	26.0	35.0	22.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	160.0	160.0	160.0	154.0	157.0	159.0
TH2 (F)	164.0	162.0	161.0	161.0	161.0	161.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC					
P020	3.502	3.658	3.493	3.535	3.637	3.501
P021	3.523	3.782	3.523	3.535	3.606	3.409
P022	3.222	3.412	3.443	3.371	3.906	3.786
P023	3.492	3.473	3.392	3.535	3.616	3.420
P024	3.150	3.268	3.554	3.299	3.419	3.420
P025	3.233	3.350	3.271	3.473	3.357	3.460
P026	3.440	3.360	3.493	3.432	3.450	3.247
P027	3.751	3.689	3.675	3.802	3.688	3.766
P028	3.554	3.422	3.574	3.412	3.802	3.755
P029	3.585	3.782	3.978	4.049	3.823	4.101
Q060	207.213	225.054	195.859	209.639	211.357	203.543
Q061	211.357	210.667	179.706	199.363	190.636	199.472
Q064	200.997	233.275	207.974	224.026	238.295	162.834
Q065	156.446	182.920	165.572	166.478	188.564	154.692
Q068	215.502	220.943	-----	224.026	-----	221.861
Q069	217.574	213.750	248.358	265.132	-----	199.472

CASE ---------- RUN SERIES C05, LOG C05

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: ATTEMPT TO EVALUATE CAUSE OF THRUST STRUCTURE HEATING. DATA IS QUESTIONABLE DUE TO POSSIBLE NOZZLE ADAPTER LEAKS FORWARD OF THE HEAT SHIELD. 19 INCH DIAMETER DISK INSTALLED AT STATION -5 (0.44 INCH FORWARD OF NOZZLE EXIT PLANE).

NORMALIZED TEST DATA

RUN NUMBER	146	147	148	149
PC (PSIA)	645.0	682.0	676.0	736.0
ALT (MU HG A)	28.0	25.0	26.0	18.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0
TO2 (F)	145.0	165.0	150.0	153.0
TH2 (F)	132.0	131.0	120.0	133.0
DO2 (IN)	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----

TRANSDUCER ID				TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA
P016	-----	0.001	0.001	0.002
P017	-----	0.001	-----	0.001
P018	-----	0.001	-----	-----
Q001	2.126	0.593	2.375	-----
Q002	3.096	0.973	2.758	2.825
Q003	6.545	4.318	5.628	5.676
Q004	5.272	3.243	4.890	5.616
Q008	5.801	2.780	4.460	-----
Q009	5.379	3.382	4.675	-----
Q011	5.252	1.789	2.029	1.829
Q013	5.262	1.789	2.543	2.190
Q015	3.763	2.548	3.160	2.722
Q016	2.538	2.548	3.310	1.374
Q019	2.714	2.437	1.599	1.666
Q022	0.074	0.091	0.092	0.037
Q023	0.022	0.019	0.008	0.004
Q024	0.019	0.019	0.009	0.003
Q025	0.033	0.032	-----	-----
Q031	0.017	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES C05, LOG C05

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: ATTEMPT TO EVALUATE CAUSE OF THRUST STRUCTURE HEATING. DATA IS QUESTIONABLE DUE TO POSSIBLE NOZZLE ADAPTER LEAKS FORWARD OF THE HEAT SHIELD. 19 INCH DIAMETER DISK INSTALLED AT STATION -5 (0.44 INCH FORWARD OF NOZZLE EXIT PLANE).

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	146	147	148	149
PC (PSIA)	645.0	682.0	676.0	736.0
ALT (MU HG A)	28.0	25.0	26.0	18.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0
TO2 (F)	145.0	165.0	150.0	153.0
TH2 (F)	132.0	131.0	120.0	133.0
DO2 (IN)	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
Q035	0.005	0.006	0.003	0.003
Q036	0.002	0.001	-----	-----

CASE ---------- RUN SERIES 1, LOG 1.1

GIMBAL PATTERN --- NO DEFLECTIONMIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: BASE LINE DATA FOR NOMINAL CONDITION

NORMALIZED TEST DATA

RUN NUMBER	103	104	105	106	107	108	109
PC (PSIA)	641.0	669.0	663.0	669.0	630.0	680.0	638.0
ALT (MU HG A)	27.0	26.0	15.0	27.0	28.0	27.0	28.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	-----	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, P IN PSIA						
P016	0.001	0.001	-----	0.002	0.001	-----	0.001
P017	0.001	0.001	-----	0.002	0.001	-----	0.001
P018	0.002	0.001	-----	0.001	0.002	0.001	0.001
Q001	0.887	2.352	1.544	0.680	3.672	0.929	-----
Q002	1.548	2.173	2.850	1.011	-----	-----	2.813
Q003	-----	-----	3.975	-----	-----	4.861	-----
Q004	-----	4.827	4.061	-----	5.838	-----	-----
Q008	3.313	3.495	4.690	1.549	3.852	2.630	-----
Q009	5.324	4.251	4.957	1.965	4.013	3.773	-----
Q011	2.534	2.059	2.488	2.966	2.618	2.091	2.625
Q013	2.544	-----	2.841	2.447	2.929	1.896	1.753
Q015	3.855	3.382	4.242	2.522	3.892	2.017	2.853
Q016	3.411	3.080	3.003	3.779	2.869	2.240	3.041
Q019	2.524	2.796	2.774	2.154	2.438	2.026	2.764
Q022	-----	0.017	0.015	0.012	0.017	0.020	-----
Q023	0.034	0.054	0.075	0.043	0.026	0.065	0.038
Q024	0.041	0.063	0.059	0.055	0.033	0.084	0.039
Q025	0.159	0.147	0.161	0.103	0.069	0.172	0.070
Q031	0.037	0.034	0.031	0.032	0.025	0.043	0.026

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 1, LOG 1.1

GIMBAL PATTERN --- NO DEFLECTIONMIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: BASE LINE DATA FOR NOMINAL CONDITION

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	103	104	105	106	107	108	109
PC (PSIA)	641.0	669.0	663.0	669.0	630.0	680.0	638.0
ALT (MU HG A)	27.0	26.0	15.0	27.0	28.0	27.0	28.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	-----	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, P IN PSIA						
Q035	0.057	0.059	0.062	0.038	0.037	0.054	0.040
Q036	0.087	0.069	0.069	0.034	0.042	0.056	0.031

CASE ---------- RUN SERIES 1, LOG 1.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TEST FOR ALTITUDE EFFECTS ON BASE ENVIRONMENT. MAXIMUM SIMULATED ALT.

NORMALIZED TEST DATA

RUN NUMBER	110	112	114	115	116
PC (PSIA)	632.0	649.0	681.0	659.0	642.0
ALT (MU HG A)	6.0	0.5	0.6	0.6	0.7
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	0.001	0.002	0.001	-----	0.002
P017	0.001	0.002	0.002	-----	0.001
P018	0.000	-----	0.000	-----	0.001
Q001	1.510	-----	1.967	0.691	0.768
Q002	2.850	2.824	3.387	1.247	0.620
Q003	-----	4.830	5.058	3.405	1.910
Q004	-----	5.901	5.327	4.661	-----
Q008	2.360	-----	5.383	1.726	1.447
Q009	-----	-----	6.042	3.836	0.906
Q011	2.750	2.639	1.967	2.398	2.766
Q013	2.480	2.357	2.088	1.851	2.934
Q015	2.310	3.233	3.137	2.273	3.416
Q016	2.780	2.785	1.958	3.692	2.953
Q019	1.530	2.259	2.218	2.637	2.304
Q022	0.018	0.027	0.032	0.023	0.022
Q023	0.062	0.027	0.028	0.024	0.045
Q024	0.079	0.026	0.038	0.042	0.039
Q025	0.234	-----	0.087	0.077	0.073
Q031	0.039	-----	0.030	0.025	0.026

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 1, LOG 1.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TEST FOR ALTITUDE EFFECTS ON BASE ENVIRONMENT. MAXIMUM SIMULATED ALT.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	110	112	114	115	116
PC (PSIA)	632.0	649.0	681.0	659.0	642.0
ALT (MU HG A)	6.0	0.5	0.6	0.6	0.7
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q035	0.061	0.031	0.040	0.042	0.040
Q036	0.074	0.025	0.036	0.040	0.040

CASE ---------- RUN SERIES 1, LOG 1.3 AND 1.4

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: FOR COMPARISON OF 210 AND 256 INCH HEAT SHIELDS ON THRUST STRUCTURE HTG. TC HEATING RATES AND PRESSURES QUESTIONABLE DUE TO HOT GAS LEAKAGE FROM NOZZLE ADAPTERS. UNEXPLAINED INCREASES OCCURRED ON SOME TC GAGES (USUALLY Q22 AND Q35). 210 INCH HEAT SHIELD & HIGH ALT

NORMALIZED TEST DATA

RUN NUMBER	117	118	119	120	121	122
PC (PSIA)	653.0	616.0	640.0	629.0	653.0	654.0
ALT (MU HG A)	25.0	27.0	27.0	0.7	0.7	2.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----

TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC (P) IN PSIA

TRANSDUCER ID						
P016	0.001	0.002	-----	0.002	0.001	0.001
P017	0.001	0.002	-----	0.002	0.001	0.001
P018	0.000	-----	-----	0.001	0.001	0.001
Q001	-----	-----	3.367	-----	3.378	2.068
Q002	1.974	3.396	3.061	3.577	3.397	2.571
Q003	3.271	5.920	-----	5.968	4.984	5.914
Q004	5.565	6.453	5.481	6.189	5.497	5.933
Q008	3.387	3.837	5.806	4.602	3.378	4.262
Q009	4.607	4.391	4.710	-----	3.291	4.542
Q011	2.797	3.037	2.528	2.894	2.332	2.445
Q013	2.884	2.791	2.903	2.894	2.226	2.223
Q015	3.271	2.585	2.992	2.803	2.449	3.131
Q016	3.136	2.308	2.765	2.562	2.545	2.532
Q019	2.013	1.559	2.330	1.708	1.461	2.194
Q022	0.053	0.055	-----	0.063	0.052	0.047
Q023	0.031	0.037	0.044	0.040	0.029	0.041
Q024	0.036	0.043	0.059	0.048	0.033	0.048
Q025	0.094	0.096	0.092	0.100	0.079	0.103
Q031	0.025	0.025	0.034	0.024	0.021	0.032

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 1, LOG 1.3 AND 1.4

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: FOR COMPARISON OF 210 AND 256 INCH HEAT SHIELDS ON THRUST STRUCTURE HTG. TC HEATING RATES AND PRESSURES QUESTIONABLE DUE TO HOT GAS LEAKAGE FROM NOZZLE ADAPTERS. UNEXPLAINED INCREASES OCCURRED ON SOME TC GAGES (USUALLY Q22 AND Q35). 210 INCH HEAT SHIELD & HIGH ALT

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	117	118	119	120	121	122
PC (PSIA)	653.0	616.0	640.0	629.0	653.0	654.0
ALT (MU HG A)	25.0	27.0	27.0	0.7	0.7	2.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	-----	-----	-----	-----	-----	-----
TH2 (F)	-----	-----	-----	-----	-----	-----
DO2 (IN)	-----	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----	-----
TRANSDUCER ID				TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC (P) IN PSIA		
Q035	0.054	0.045	0.048	-----	0.054	0.064
Q036	0.052	0.045	0.041	-----	0.055	0.072

CASE ---------- RUN SERIES 1, LOG 1.5

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE EFFECT OF HIGHER CHAMBER PRESSURE WITH O/F = 5. POSSIBLE NOZZLE ADAPTER LEAKAGE FORWARD OF HEAT SHIELD DURING RUN 190. THRUST STRUCTURE DATA QUESTIONABLE.

NORMALIZED TEST DATA

RUN NUMBER	184	185	186	187	188	190	191	192	193	195
PC (PSIA)	642.0	651.0	695.0	685.0	701.0	706.0	659.0	642.0	703.0	719.0
ALT (MU HG A)	25.0	22.0	27.0	23.0	25.0	25.0	28.0	28.0	24.0	27.0
PO2 (PSIA)	1265.0	1295.0	1415.0	1415.0	1415.0	1415.0	1415.0	1415.0	1415.0	1415.0
PH2 (PSIA)	1315.0	1345.0	1465.0	1465.0	1465.0	1465.0	1465.0	1465.0	1465.0	1465.0
TO2 (F)	161.0	163.0	170.0	156.0	158.0	156.0	172.0	176.0	148.0	156.0
TH2 (F)	143.0	146.0	155.0	151.0	146.0	143.0	153.0	158.0	130.0	143.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER OUTPUT

TRANSDUCER ID	(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA									
P016	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.001
P017	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.000
P018	0.001	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.000
Q001	0.958	1.153	0.751	0.992	1.081	0.820	0.911	0.835	0.946	0.935
Q002	2.049	2.680	1.255	2.077	1.601	1.155	1.042	1.225	1.271	1.541
Q003	4.789	4.327	4.712	-----	3.886	2.603	-----	-----	-----	3.490
Q004	5.981	4.679	3.148	-----	5.436	3.929	-----	-----	-----	3.560
Q008	2.673	2.109	1.687	1.785	1.846	2.046	1.378	1.693	1.149	1.581
Q009	3.308	2.987	2.150	2.380	2.468	2.896	2.213	2.339	1.729	1.621
Q011	2.506	2.427	2.438	2.568	2.428	2.319	3.060	2.985	2.553	2.745
Q013	2.695	2.427	2.901	2.683	2.254	1.296	1.769	1.504	2.288	2.745
Q014	1.971	2.625	3.066	2.474	2.142	-----	2.908	3.118	2.370	2.864
Q016	1.916	2.208	2.274	2.265	2.754	2.431	2.387	2.372	2.116	2.307
Q019	1.782	1.944	1.914	1.326	1.622	2.269	1.953	1.927	1.546	1.661
Q022	0.017	0.012	0.017	0.006	-----	-----	0.007	0.009	0.006	0.004
Q023	0.052	0.051	0.052	0.035	0.014	0.024	0.062	0.053	0.058	0.053
Q024	0.066	0.062	0.070	0.056	0.029	0.032	0.088	0.072	0.077	0.073
Q025	0.043	0.037	0.053	0.056	0.025	0.038	0.135	0.106	0.141	0.106
Q030	0.000	-----	0.000	0.000	0.000	-----	-----	0.008	0.000	0.000

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 1, LOG 1.5

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE EFFECT OF HIGHER CHAMBER PRESSURE WITH O/F = 5. POSSIBLE NOZZLE ADAPTER LEAKAGE FORWARD OF HEAT SHIELD DURING RUN 190. THRUST STRUCTURE DATA QUESTIONABLE.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	184	185	186	187	188	190	191	192	193	195
PC (PSIA)	642.0	651.0	695.0	685.0	701.0	706.0	659.0	642.0	703.0	719.0
ALT (MU HG A)	25.0	22.0	27.0	23.0	25.0	25.0	28.0	28.0	24.0	27.0
PO2 (PSIA)	1265.0	1295.0	1415.0	1415.0	1415.0	1415.0	1415.0	1415.0	1415.0	1415.0
PH2 (PSIA)	1315.0	1345.0	1465.0	1465.0	1465.0	1465.0	1465.0	1465.0	1465.0	1465.0
TO2 (F)	161.0	163.0	170.0	156.0	158.0	156.0	172.0	176.0	148.0	156.0
TH2 (F)	143.0	146.0	155.0	151.0	146.0	143.0	153.0	158.0	130.0	143.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA									
Q033	0.004	0.000	0.010	-----	-----	-----	0.017	0.000	0.012	0.010
Q034	0.030	0.027	0.033	0.022	0.040	0.094	0.042	0.040	0.032	0.028
Q035	0.056	0.052	0.058	0.043	0.038	0.051	0.078	0.078	0.063	0.058
Q036	0.053	0.058	0.064	0.048	0.032	0.042	0.068	0.076	0.060	0.055

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. 07H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.Q50 @ P17,Q51 @ P15.

NORMALIZED TEST DATA

RUN NUMBER	124	126	128	129	130	131	133	136	282	283	284
PC (PSIA)	708.0	683.0	703.0	709.0	704.0	694.0	715.0	693.0	711.0	700.0	710.0
ALT (MU HG A)	25.0	27.0	27.0	27.0	27.0	27.0	30.0	26.0	27.0	27.0	27.0
PO2 (PSIA)	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1235.0	1235.0	1235.0
TO2 (F)	-----	-----	-----	-----	156.0	165.0	146.0	165.0	172.0	168.0	165.0
TH2 (F)	-----	-----	-----	-----	140.0	146.0	135.0	148.0	152.0	146.0	146.0
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	0.398	0.398	0.398
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	0.335	0.335	0.335

TRANSDUCER OUTPUT
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA

TRANSDUCER ID											
P001	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P002	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P003	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P006	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P007	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P008	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P011	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P016	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.004	0.004	0.004
P017	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.001	-----	-----	-----
P018	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.003
Q001	2.828	2.188	2.461	0.787	1.879	2.936	2.690	0.753	-----	-----	-----
Q002	2.575	2.942	3.448	1.845	3.595	3.359	3.970	1.455	-----	-----	-----
Q003	7.251	6.490	5.228	5.456	-----	7.356	-----	4.725	-----	-----	-----
Q004	7.766	7.255	-----	-----	-----	6.676	-----	4.282	4.234	6.200	6.425
Q007	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q008	5.888	5.496	5.340	4.649	2.742	5.028	6.230	2.445	-----	-----	-----
Q009	6.019	6.302	6.285	6.535	3.473	6.006	7.360	4.529	-----	-----	-----
Q010	-----	-----	-----	-----	-----	-----	-----	-----	3.831	3.064	3.565

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. Q7H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.050 @ P17,Q51 @ P15.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	124	126	128	129	130	131	133	136	282	283	284
PC (PSIA)	708.0	683.0	703.0	709.0	704.0	694.0	715.0	693.0	711.0	700.0	710.0
ALT (MU HG A)	25.0	27.0	27.0	27.0	27.0	27.0	30.0	26.0	27.0	27.0	27.0
PO2 (PSIA)	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1235.0	1235.0	1235.0
TO2 (F)	-----	-----	-----	-----	156.0	165.0	146.0	165.0	172.0	168.0	165.0
TH2 (F)	-----	-----	-----	-----	140.0	146.0	135.0	148.0	152.0	146.0	146.0
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	0.398	0.398	0.398
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
Q011	2.939	2.376	3.061	3.217	3.656	3.060	2.520	1.661	-----	-----	-----
Q013	2.626	3.444	3.234	-----	2.712	2.967	2.180	2.094	-----	-----	-----
Q015	2.424	3.308	3.529	4.034	-----	3.008	4.860	2.868	-----	-----	-----
Q017	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q019	2.303	3.109	2.909	2.592	1.757	2.421	3.190	3.054	-----	-----	-----
Q022	0.059	0.067	0.076	0.071	0.144	0.045	0.063	0.080	0.026	0.010	0.011
Q023	0.034	0.031	0.028	0.034	0.035	0.030	0.032	0.030	0.041	0.068	0.058
Q024	0.041	0.049	0.034	0.042	0.038	0.028	0.035	0.032	0.060	0.085	0.089
Q025	0.070	0.064	0.067	0.084	0.071	0.069	0.071	0.072	0.096	0.169	0.168
Q030	-----	-----	-----	-----	-----	-----	-----	-----	0.013	0.008	0.008
Q031	0.020	0.019	0.023	0.023	0.020	0.020	0.020	0.025	0.025	0.026	0.031
Q032	-----	-----	-----	-----	-----	-----	-----	-----	0.032	0.055	0.055
Q033	-----	-----	-----	-----	-----	-----	-----	-----	0.014	0.016	0.014
Q034	-----	-----	-----	-----	-----	-----	-----	-----	0.026	0.032	0.030
Q035	0.034	0.030	0.036	0.039	0.042	0.036	0.034	0.032	0.074	0.074	0.070
Q036	0.034	0.025	0.032	0.030	0.037	0.039	0.034	0.031	0.079	0.093	0.089
Q037	-----	-----	-----	-----	-----	-----	-----	-----	0.124	0.121	0.105
Q040	-----	-----	-----	-----	-----	-----	-----	-----	0.034	0.033	0.042
Q041	-----	-----	-----	-----	-----	-----	-----	-----	0.021	-----	0.028
Q050	-----	-----	-----	-----	-----	-----	-----	-----	0.084	0.077	0.116

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. Q7H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.Q50 @ P17,Q51 @ P15.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	124	126	128	129	130	131	133	136	282	283	284
PC (PSIA)	708.0	683.0	703.0	709.0	704.0	694.0	715.0	693.0	711.0	700.0	710.0
ALT (MU HG A)	25.0	27.0	27.0	27.0	27.0	27.0	30.0	26.0	27.0	27.0	27.0
PO2 (PSIA)	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1295.0	1235.0	1235.0	1235.0
TO2 (F)	-----	-----	-----	-----	156.0	165.0	146.0	165.0	172.0	168.0	165.0
TH2 (F)	-----	-----	-----	-----	140.0	146.0	135.0	148.0	152.0	146.0	146.0
DO2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	0.398	0.398	0.398
DH2 (IN)	-----	-----	-----	-----	-----	-----	-----	-----	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
Q051	-----	-----	-----	-----	-----	-----	-----	-----	0.000	0.007	0.000
Q052	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q07H	-----	-----	-----	-----	-----	-----	-----	-----	6.064	6.680	-----
T07H	-----	-----	-----	-----	-----	-----	-----	-----	100.563	102.143	100.704

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. Q7H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.Q50 @ P17,Q51 @ P15.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	285	291	292	337	338	339	340	341	342
PC (PSIA)	720.0	689.0	689.0	682.0	661.0	688.0	681.0	704.0	704.0
ALT (MU HG A)	27.0	26.0	24.0	30.0	27.0	26.0	30.0	27.0	31.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	164.0	170.0	162.0	170.0	165.0	164.0	161.0	161.0	155.0
TH2 (F)	150.0	150.0	142.0	150.0	145.0	146.0	146.0	146.0	140.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
P001	-----	-----	-----	0.025	0.024	0.023	0.023	0.024	0.025
P002	-----	-----	-----	0.031	0.032	0.027	0.026	0.034	0.036
P003	-----	-----	-----	0.032	0.035	0.031	0.031	0.031	0.036
P005	-----	-----	-----	0.032	0.035	0.031	0.031	0.028	0.032
P006	-----	-----	-----	0.031	0.031	0.033	0.031	0.030	0.035
P007	-----	-----	-----	0.029	0.027	0.030	0.034	0.032	0.030
P008	-----	-----	-----	0.021	-----	0.031	0.024	0.020	0.021
P011	-----	-----	-----	0.031	-----	0.029	0.033	0.036	0.035
P016	-----	0.003	0.004	-----	-----	-----	-----	-----	-----
P017	-----	-----	-----	-----	-----	-----	-----	-----	-----
P018	-----	0.002	0.003	-----	-----	-----	-----	-----	-----
Q001	-----	1.723	1.328	0.933	0.822	1.642	1.323	0.650	0.650
Q002	-----	4.130	3.881	2.013	2.207	2.785	2.373	1.584	2.895
Q003	-----	-----	3.881	3.565	3.299	4.199	-----	3.372	3.179
Q004	4.965	6.486	5.531	-----	4.695	5.477	4.557	4.621	5.505
Q007	-----	-----	-----	1.457	2.207	1.580	1.722	1.645	1.716
Q008	-----	-----	-----	3.533	2.866	4.947	3.202	3.870	2.488
Q009	-----	4.338	4.307	3.051	3.267	4.884	3.234	4.225	3.402
Q010	3.654	-----	-----	-----	-----	-----	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. Q7H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.050 @ P17,Q51 @ P15.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	285	291	292	337	338	339	340	341	342
PC (PSIA)	720.0	689.0	689.0	682.0	661.0	688.0	681.0	704.0	704.0
ALT (MU HG A)	27.0	26.0	24.0	30.0	27.0	26.0	30.0	27.0	31.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	164.0	170.0	162.0	170.0	165.0	164.0	161.0	161.0	155.0
TH2 (F)	150.0	150.0	142.0	150.0	145.0	146.0	146.0	146.0	140.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q011	-----	2.916	2.812	-----	2.802	3.378	3.685	3.128	2.925
Q013	-----	3.912	3.310	-----	3.083	4.552	-----	3.270	3.209
Q015	-----	-----	-----	3.260	2.704	4.136	2.772	3.199	2.803
Q017	-----	-----	-----	0.734	0.974	0.821	0.777	0.762	0.680
Q019	-----	-----	-----	2.359	1.958	3.856	1.596	2.752	1.737
Q022	0.016	0.023	0.024	-----	-----	-----	-----	-----	-----
Q023	0.066	0.076	0.077	-----	-----	-----	-----	-----	-----
Q024	0.092	0.075	0.104	-----	-----	-----	-----	-----	-----
Q025	0.155	0.193	0.194	-----	-----	-----	-----	-----	-----
Q030	0.010	0.012	0.011	-----	-----	-----	-----	-----	-----
Q031	0.031	0.037	0.029	-----	-----	-----	-----	-----	-----
Q032	0.061	0.062	0.060	-----	-----	-----	-----	-----	-----
Q033	0.014	0.000	-----	-----	-----	-----	-----	-----	-----
Q034	0.030	0.042	0.052	-----	-----	-----	-----	-----	-----
Q035	0.070	0.074	0.084	-----	-----	-----	-----	-----	-----
Q036	0.087	0.092	0.098	-----	-----	-----	-----	-----	-----
Q037	0.111	-----	-----	-----	-----	-----	-----	-----	-----
Q040	0.042	-----	-----	-----	-----	-----	-----	-----	-----
Q041	0.050	0.023	0.027	-----	-----	-----	-----	-----	-----
Q050	0.178	-----	-----	-----	-----	-----	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO EVALUATE EFFECT OF HIGHER MIXTURE RATIO AND CHAMBER PRESSURE. LEAK FORWARD OF THE HEAT SHIELD OR ZERO SHIFT FROM SPARK NOISE. TC DATA QUESTIONABLE ON RUNS 124-136. Q7H HEATED TO MEASURE TR. 0.6 DEG GIMBAL BLOCK ON NOZZLE 3 RUNS 282-285.Q50 @ P17,Q51 @ P15.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	285	291	292	337	338	339	340	341	342
PC (PSIA)	720.0	689.0	689.0	682.0	661.0	688.0	681.0	704.0	704.0
ALT (MU HG A)	27.0	26.0	24.0	30.0	27.0	26.0	30.0	27.0	31.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	164.0	170.0	162.0	170.0	165.0	164.0	161.0	161.0	155.0
TH2 (F)	150.0	150.0	142.0	150.0	145.0	146.0	146.0	146.0	140.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q051	0.005	-----	-----	-----	-----	-----	-----	-----	-----
Q052	-----	-----	-----	1.793	2.023	1.819	2.184	1.991	2.092
Q07H	-----	-----	-----	-----	-----	-----	-----	-----	-----
T07H	-----	-----	-----	-----	-----	-----	-----	-----	-----

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

NORMALIZED TEST DATA

RUN NUMBER	139	142	144	159	160	161	163	165	166	167	168
PC (PSIA)	651.0	624.0	587.0	601.0	594.0	544.0	496.0	480.0	526.0	491.0	497.0
ALT (MU HG A)	27.0	25.0	28.0	26.0	27.0	-----	26.0	22.0	25.0	20.0	27.0
PO2 (PSIA)	1015.0	990.0	-----	1190.0	1165.0	1015.0	1015.0	1015.0	1090.0	1090.0	1090.0
PH2 (PSIA)	1175.0	1147.0	-----	1190.0	1165.0	1015.0	1015.0	1015.0	1090.0	1090.0	1090.0
TO2 (F)	152.0	118.0	-----	176.0	172.0	160.0	162.0	-----	163.0	167.0	166.0
TH2 (F)	126.0	104.0	-----	152.0	148.0	140.0	140.0	-----	142.0	145.0	143.0
DO2 (IN)	-----	-----	-----	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	-----	-----	-----	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER OUTPUT
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA

TRANSDUCER ID											
P001	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P002	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P003	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P006	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P007	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P008	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P011	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P016	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
P017	0.000	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000
P018	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q001	0.721	0.630	2.260	1.826	1.406	1.716	1.134	0.694	1.163	2.146	2.582
Q002	1.359	1.409	2.735	2.980	1.829	2.178	1.629	1.160	1.744	3.002	3.252
Q003	4.311	2.327	4.344	5.233	4.164	5.119	6.550	5.414	4.391	5.349	5.328
Q004	2.399	2.782	4.353	4.479	4.320	4.968	5.746	5.096	5.387	5.071	5.405
Q007	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q008	2.097	2.520	4.567	3.843	3.043	3.362	3.985	3.469	4.557	5.716	5.361
Q009	2.743	2.704	4.130	3.943	2.730	3.673	5.944	3.731	6.249	6.116	6.196
Q011	1.375	1.295	1.302	1.653	1.572	2.088	-----	2.241	1.453	1.257	1.780

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	139	142	144	159	160	161	163	165	166	167	168
PC (PSIA)	651.0	624.0	587.0	601.0	594.0	544.0	496.0	480.0	526.0	491.0	497.0
ALT (MU HG A)	27.0	25.0	28.0	26.0	27.0	-----	26.0	22.0	25.0	20.0	27.0
PO2 (PSIA)	1015.0	990.0	-----	1190.0	1165.0	1015.0	1015.0	1015.0	1090.0	1090.0	1090.0
PH2 (PSIA)	1175.0	1147.0	-----	1190.0	1165.0	1015.0	1015.0	1015.0	1090.0	1090.0	1090.0
TO2 (F)	152.0	118.0	-----	176.0	172.0	160.0	162.0	-----	163.0	167.0	166.0
TH2 (F)	126.0	104.0	-----	152.0	148.0	140.0	140.0	-----	142.0	145.0	143.0
DO2 (IN)	-----	-----	-----	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	-----	-----	-----	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
Q013	1.602	1.225	1.870	1.744	1.848	2.088	-----	2.844	2.190	2.002	2.670
Q015	1.627	2.117	3.181	2.671	1.682	1.947	3.963	2.707	3.291	3.492	3.856
Q016	1.728	1.382	1.665	1.853	1.636	2.017	2.356	2.207	2.201	1.946	2.746
Q017	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q019	1.334	1.330	1.804	1.699	1.416	1.345	2.752	1.536	2.273	2.124	-----
Q022	0.032	0.051	0.065	0.041	0.053	0.058	0.063	0.065	0.075	0.063	-----
Q023	0.018	0.017	0.020	0.012	0.023	0.018	0.026	0.024	0.021	0.057	0.018
Q024	0.014	0.017	0.019	0.012	0.024	0.025	0.029	0.026	0.021	0.054	0.020
Q025	0.043	0.034	0.026	0.043	0.050	0.042	0.043	0.043	0.039	-----	0.036
Q030	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q031	0.014	0.016	0.016	-----	0.013	0.010	0.011	0.009	0.000	-----	0.009
Q032	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q033	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q034	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q035	0.018	0.016	0.011	0.024	0.026	0.026	0.020	0.019	0.016	0.029	0.022
Q036	0.009	0.016	0.006	0.024	0.015	0.023	0.017	0.022	0.016	0.004	0.022
Q037	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q041	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q052	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	293	294	295	296	297	298	331	332	333	334	335
PC (PSIA)	500.0	511.0	511.0	522.0	503.0	503.0	541.0	531.0	575.0	531.0	511.0
ALT (MU HG A)	27.0	26.0	25.0	27.0	27.0	27.0	26.0	27.0	27.0	26.0	27.0
PO2 (PSIA)	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1085.0	1090.0	1090.0
PH2 (PSIA)	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0
TO2 (F)	168.0	171.0	170.0	160.0	158.0	165.0	163.0	154.0	152.0	155.0	155.0
TH2 (F)	150.0	151.0	145.0	145.0	140.0	138.0	146.0	137.0	139.0	140.0	138.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.388	0.361	0.361
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
P001	-----	-----	-----	-----	-----	-----	0.017	0.017	0.017	0.016	0.018
P002	-----	-----	-----	-----	-----	-----	0.027	0.026	0.021	0.024	0.026
P003	-----	-----	-----	-----	-----	-----	0.023	0.023	0.018	0.019	0.022
P005	-----	-----	-----	-----	-----	-----	0.023	0.020	0.020	0.023	0.021
P006	-----	-----	-----	-----	-----	-----	0.021	0.024	0.023	0.024	0.025
P007	-----	-----	-----	-----	-----	-----	0.018	0.021	0.017	0.023	0.026
P008	-----	-----	-----	-----	-----	-----	-----	0.020	0.019	0.016	0.017
P011	-----	-----	-----	-----	-----	-----	-----	0.024	0.019	0.020	0.024
P016	0.002	0.001	0.002	0.002	0.001	0.002	-----	-----	-----	-----	-----
P017	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
P018	0.000	0.001	0.002	0.001	0.000	0.000	-----	-----	-----	-----	-----
Q001	1.856	3.355	1.239	1.098	1.031	2.084	0.434	1.203	0.541	0.504	0.534
Q002	4.150	5.236	3.815	2.385	1.780	4.071	0.696	-----	0.950	0.689	0.833
Q003	-----	6.144	5.193	3.483	3.669	5.319	2.301	4.113	1.766	-----	-----
Q004	4.936	4.787	6.304	5.429	-----	5.069	3.310	4.257	3.257	-----	2.137
Q007	-----	-----	-----	-----	-----	-----	1.645	1.306	1.168	1.584	1.218
Q008	-----	-----	-----	-----	-----	-----	1.807	2.252	2.118	1.614	1.784
Q009	4.630	4.392	4.231	4.184	3.875	2.692	2.432	1.522	2.440	1.758	1.784
Q011	-----	1.175	1.795	-----	1.758	0.977	2.594	2.601	2.345	2.242	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	293	294	295	296	297	298	331	332	333	334	335
PC (PSIA)	500.0	511.0	511.0	522.0	503.0	503.0	541.0	531.0	575.0	531.0	511.0
ALT (MU HG A)	27.0	26.0	25.0	27.0	27.0	27.0	26.0	27.0	27.0	26.0	27.0
PO2 (PSIA)	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1085.0	1090.0	1090.0
PH2 (PSIA)	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0	1090.0
TO2 (F)	168.0	171.0	170.0	160.0	158.0	165.0	163.0	154.0	152.0	155.0	155.0
TH2 (F)	150.0	151.0	145.0	145.0	140.0	138.0	146.0	137.0	139.0	140.0	138.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.388	0.361	0.361
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
Q013	-----	1.624	1.923	-----	-----	-----	1.928	-----	2.118	2.036	-----
Q015	-----	-----	-----	-----	-----	-----	2.251	1.902	2.668	2.540	2.490
Q016	-----	-----	-----	-----	-----	-----	-----	2.036	2.317	2.139	2.041
Q017	-----	-----	-----	-----	-----	-----	0.565	0.668	0.532	0.452	0.620
Q019	-----	-----	-----	-----	-----	-----	2.190	1.296	1.918	1.655	2.158
Q022	0.022	0.018	0.016	0.010	0.015	0.018	-----	-----	-----	-----	-----
Q023	0.055	0.056	0.053	0.049	0.053	0.052	-----	-----	-----	-----	-----
Q024	0.092	0.068	0.073	-----	0.064	0.064	-----	-----	-----	-----	-----
Q025	0.133	0.136	0.150	0.121	0.134	0.134	-----	-----	-----	-----	-----
Q030	0.013	0.007	0.010	0.008	0.009	0.009	-----	-----	-----	-----	-----
Q031	0.021	0.020	0.021	0.016	0.021	0.021	-----	-----	-----	-----	-----
Q032	0.035	0.058	0.035	0.035	0.035	0.042	-----	-----	-----	-----	-----
Q033	0.000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q034	0.024	0.024	0.026	0.019	0.021	0.025	-----	-----	-----	-----	-----
Q035	0.050	0.048	0.017	0.049	0.031	0.056	-----	-----	-----	-----	-----
Q036	0.058	0.057	0.048	0.055	0.055	0.062	-----	-----	-----	-----	-----
Q037	0.057	0.058	0.038	0.060	0.058	0.066	-----	-----	-----	-----	-----
Q041	0.026	0.026	0.025	0.022	0.021	0.018	-----	-----	-----	-----	-----
Q052	-----	-----	-----	-----	-----	-----	0.797	-----	0.598	0.874	0.844

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	336
PC (PSIA)	511.0
ALT (MU HG A)	27.0
PO2 (PSIA)	1090.0
PH2 (PSIA)	1090.0
TO2 (F)	164.0
TH2 (F)	144.0
DO2 (IN)	0.361
DH2 (IN)	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA
P001	0.019
P002	0.026
P003	0.028
P005	0.024
P006	0.025
P007	0.024
P008	0.015
P011	0.028
P016	-----
P017	-----
P018	-----
Q001	0.684
Q002	1.079
Q003	2.415
Q004	3.419
Q007	1.421
Q008	1.795
Q009	1.795
Q011	2.393

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 4.50
NOMINAL PC ------- 546.0 PSIA INTERSTAGE ------- OFF

REMARKS: EVALUATION OF LOW O/F AND PC. THRUST STRUCTURE DATA QUESTIONABLE RUNS 139-168 DUE TO APPARENT NOZZLE ADAPTER LEAKAGE FWD OF HEAT SHIELD. NO 3 ENG NOZZLE ADAPTER REPLACED BY 0.6 DEG GIMBAL ADAPTER DUE TO LEAKAGE RUNS 293-298. PREMATURE FLOW RUNS 333,335,336.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	336
PC (PSIA)	511.0
ALT (MU HG A)	27.0
PO2 (PSIA)	1090.0
PH2 (PSIA)	1090.0
TO2 (F)	164.0
TH2 (F)	144.0
DO2 (IN)	0.361
DH2 (IN)	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA
Q013	2.233
Q015	1.710
Q016	2.105
Q017	0.662
Q019	1.047
Q022	-----
Q023	-----
Q024	-----
Q025	-----
Q030	-----
Q031	-----
Q032	-----
Q033	-----
Q034	-----
Q035	-----
Q036	-----
Q037	-----
Q041	-----
Q052	1.581

CASE ---------- RUN SERIES 2, LOG 2.3

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EVALUATION OF INCREASED MIXTURE RATIO WITH INTERSTAGE SKIRT IN PLACE

NORMALIZED TEST DATA

RUN NUMBER	152	153	154	157	158
PC (PSIA)	672.0	693.0	693.0	697.0	683.0
ALT (MU HG A)	29.0	26.0	24.0	25.0	26.0
PO2 (PSIA)	1365.0	1365.0	1365.0	1365.0	1365.0
PH2 (PSIA)	1295.0	1295.0	1295.0	1295.0	1295.0
TO2 (F)	156.0	153.0	160.0	152.0	168.0
TH2 (F)	134.0	136.0	141.0	131.0	148.0
DO2 (IN)	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	0.031	-----	0.031	0.028	-----
P017	0.029	-----	0.030	0.023	0.030
P018	0.032	0.029	0.024	0.030	0.035
Q001	2.405	2.022	1.517	2.062	1.078
Q002	4.107	3.178	2.239	2.954	2.020
Q003	6.118	6.139	5.014	4.585	4.836
Q004	5.639	6.366	4.127	4.883	5.779
Q008	3.469	5.458	4.240	4.452	3.182
Q009	3.469	5.097	4.994	4.678	5.025
Q011	2.851	3.157	3.085	2.277	3.172
Q013	3.296	2.363	2.796	2.318	2.774
Q015	3.745	5.252	3.539	3.734	3.737
Q016	3.745	3.766	2.951	3.190	3.654
Q019	2.543	3.890	3.137	2.872	2.847
Q022	0.298	0.371	0.268	0.215	0.440
Q023	1.458	1.094	0.836	0.903	1.047
Q024	1.458	1.826	0.691	0.657	1.120
Q025	0.255	0.495	0.444	0.226	0.502
Q031	0.585	0.877	0.856	0.369	0.879

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.3

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EVALUATION OF INCREASED MIXTURE RATIO WITH INTERSTAGE SKIRT IN PLACE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	152	153	154	157	158
PC (PSIA)	672.0	693.0	693.0	697.0	683.0
ALT (MU HG A)	29.0	26.0	24.0	25.0	26.0
PO2 (PSIA)	1365.0	1365.0	1365.0	1365.0	1365.0
PH2 (PSIA)	1295.0	1295.0	1295.0	1295.0	1295.0
TO2 (F)	156.0	153.0	160.0	152.0	168.0
TH2 (F)	134.0	136.0	141.0	131.0	148.0
DO2 (IN)	-----	-----	-----	-----	-----
DH2 (IN)	-----	-----	-----	-----	-----

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q035	0.936	0.268	1.321	0.472	0.429
Q036	0.936	0.836	1.352	0.923	0.429

CASE ---------- RUN SERIES 2, LOG 2.4

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE THE EFFECT OF INCREASED MIXTURE RATIO WITH LARGE ENGINE DEFLECTIONS

NORMALIZED TEST DATA

RUN NUMBER	196	197	198	199	200	202	203	204	205
PC (PSIA)	658.0	652.0	679.0	684.0	690.0	700.0	676.0	691.0	702.0
ALT (MU HG A)	27.0	25.0	26.0	24.0	25.0	28.0	27.0	35.0	26.0
PO2 (PSIA)	1365.0	1295.0	1365.0	1390.0	1415.0	1415.0	1415.0	1415.0	1415.0
PH2 (PSIA)	1295.0	1295.0	1365.0	1390.0	1415.0	1415.0	1415.0	1415.0	1415.0
TO2 (F)	148.0	143.0	150.0	154.0	163.0	153.0	143.0	153.0	151.0
TH2 (F)	131.0	127.0	132.0	136.0	147.0	138.0	128.0	140.0	141.0
DO2 (IN)	0.338	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER OUTPUT

TRANSDUCER ID	(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
P018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q002	4.564	4.387	4.275	4.275	4.031	4.218	3.691	3.942	4.227
Q003	8.584	9.431	8.540	9.011	8.953	7.569	8.303	8.671	9.126
Q004	-----	-----	7.445	7.599	-----	6.946	7.425	7.191	7.781
Q008	12.214	13.445	13.468	13.871	12.497	12.696	12.798	11.724	14.361
Q009	10.551	9.924	10.635	11.133	8.994	9.622	11.381	9.654	9.890
Q010	34.446	32.592	28.663	28.161	32.527	35.607	-----	27.193	19.494
Q011	7.943	6.832	7.677	7.620	6.653	6.844	7.488	6.105	6.987
Q013	5.075	5.373	5.212	6.251	4.145	3.892	3.913	5.225	4.563
Q014	19.559	14.377	20.460	18.471	22.497	22.328	19.662	22.060	17.753
Q015	9.845	10.242	8.993	12.962	8.756	8.754	9.688	9.406	7.466
Q016	9.106	8.707	7.898	9.335	8.953	9.162	8.440	9.002	7.853
Q017	5.433	5.428	6.476	4.422	6.041	7.201	5.754	6.446	5.765
Q018	4.292	5.439	5.381	5.185	5.710	5.618	5.733	6.043	5.694
Q019	5.433	7.523	5.318	5.603	5.523	5.546	5.489	5.412	5.887
Q023	0.049	0.050	0.052	0.054	0.055	0.040	0.044	0.039	0.048
Q024	0.061	0.063	0.066	0.070	0.068	0.047	0.056	0.051	0.055
Q025	0.084	0.107	0.131	0.132	0.133	0.074	0.051	0.071	0.109
Q030	0.020	0.010	0.013	0.007	0.011	0.000	0.007	0.008	0.011

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 2, LOG 2.4

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE THE EFFECT OF INCREASED MIXTURE RATIO WITH LARGE ENGINE DEFLECTIONS

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	196	197	198	199	200	202	203	204	205
PC (PSIA)	658.0	652.0	679.0	684.0	690.0	700.0	676.0	691.0	702.0
ALT (MU HG A)	27.0	25.0	26.0	24.0	25.0	28.0	27.0	35.0	26.0
PO2 (PSIA)	1365.0	1295.0	1365.0	1390.0	1415.0	1415.0	1415.0	1415.0	1415.0
PH2 (PSIA)	1295.0	1295.0	1365.0	1390.0	1415.0	1415.0	1415.0	1415.0	1415.0
TO2 (F)	148.0	143.0	150.0	154.0	163.0	153.0	143.0	153.0	151.0
TH2 (F)	131.0	127.0	132.0	136.0	147.0	138.0	128.0	140.0	141.0
DO2 (IN)	0.338	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q032	0.041	0.063	-----	0.046	0.051	0.046	0.055	0.034	0.055
Q052	-----	7.271	-----	8.530	6.715	6.813	7.118	7.688	6.956

CASE ---------- RUN SERIES 3, LOG 3.1 (Q51 @ P15 FACING OUTBD)

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: PC INDICATES STEADY FLOW, HOWEVER,O/F UNCERTAIN SINCE VENTURI FLO VARIED WITH TIME & DETONATION RUPTURED NOZ. DIAPHRAGMS AT START OF COMBUSTION RNS 255,258,259,261. HEAT-ED COMP Q7H REPLACED Q7. Q50 @ P17 LOC. FACING P16 RNS 258-260, FACING P18 RNS 261-263

NORMALIZED TEST DATA

RUN NUMBER	253	254	255	256	257	258	259	260	261	262	263
PC (PSIA)	647.0	641.0	575.0	619.0	597.0	569.0	605.0	611.0	572.0	605.0	628.0
ALT (MU HG A)	24.0	26.0	-----	26.0	25.0	27.0	15.0	15.0	15.0	15.0	15.0
PO2 (PSIA)	1120.0	1415.0	1315.0	1315.0	1315.0	1315.0	1315.0	1315.0	1315.0	1315.0	1345.0
PH2 (PSIA)	1203.0	1405.0	1305.0	1305.0	1305.0	1305.0	1305.0	1305.0	1305.0	1305.0	1335.0
TO2 (F)	166.0	160.0	168.0	165.0	168.0	170.0	166.0	163.0	165.0	167.0	166.0
TH2 (F)	145.0	146.0	145.0	146.0	148.0	148.0	144.0	143.0	145.0	146.0	146.0
DO2 (IN)	0.388	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
DH2 (IN)	0.326	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
P016	0.001	0.002	-----	0.001	0.001	0.002	0.001	0.013	0.001	0.001	0.002
P017	0.000	0.000	0.000	0.000	0.000	-----	-----	-----	-----	-----	-----
P018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
Q004	-----	6.389	6.430	6.249	6.648	7.575	6.665	6.030	6.099	6.268	6.541
Q010	-----	23.515	17.696	19.450	23.967	16.450	21.091	23.646	25.634	20.694	20.882
Q022	-----	0.018	-----	0.008	0.016	-----	0.015	0.016	0.011	-----	0.012
Q023	-----	0.045	-----	0.052	-----	-----	0.046	0.035	-----	-----	-----
Q024	-----	0.077	0.089	0.076	0.052	0.079	0.051	0.050	0.054	0.049	0.061
Q025	0.085	0.096	0.063	0.092	0.077	0.117	0.116	0.081	0.084	0.088	0.112
Q030	0.000	0.022	0.008	0.013	0.012	0.011	0.016	0.010	0.011	0.008	0.016
Q031	0.025	0.032	0.036	0.031	0.025	0.031	0.019	0.023	0.023	0.014	0.017
Q032	0.009	0.029	0.021	0.026	0.025	0.022	0.011	0.023	0.028	0.021	0.026
Q033	0.031	0.021	0.011	0.012	0.012	0.011	0.008	0.016	0.011	0.008	0.013
Q034	0.017	0.022	0.016	0.014	0.014	0.016	0.013	0.016	0.017	0.018	0.023
Q035	0.019	0.041	0.033	0.035	0.034	0.040	0.037	0.043	0.045	0.047	0.050
Q036	0.025	0.052	0.024	0.041	0.046	0.047	0.060	0.042	0.051	0.052	0.059
Q037	0.029	-----	0.038	0.074	0.060	0.062	0.065	0.085	0.059	-----	0.073
Q040	-----	-----	-----	-----	0.007	0.027	-----	-----	-----	0.031	0.032
Q041	-----	-----	-----	0.020	0.022	-----	0.019	0.029	0.031	-----	0.018

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 3, LOG 3.1 (Q51 @ P15 FACING OUTBD)

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: PC INDICATES STEADY FLOW, HOWEVER,O/F UNCERTAIN SINCE VENTURI FLO VARIED WITH TIME & DETONATION RUPTURED NOZ. DIAPHRAGMS AT START OF COMBUSTION RNS 255,258,259,261. HEAT -ED COMP Q7H REPLACED Q7. Q50 @ P17 LOC. FACING P16 RNS 258-260, FACING P18 RNS 261-263

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	253	254	255	256	257	258	259	260	261	262	263
PC (PSIA)	647.0	641.0	575.0	619.0	597.0	569.0	605.0	611.0	572.0	605.0	628.0
ALT (MU HG A)	24.0	26.0	-----	26.0	25.0	27.0	15.0	15.0	15.0	15.0	15.0
PO2 (PSIA)	1120.0	1415.0	1315.0	1315.0	1315.0	1315.0	1315.0	1315.0	1315.0	1315.0	1345.0
PH2 (PSIA)	1203.0	1405.0	1305.0	1305.0	1305.0	1305.0	1305.0	1305.0	1305.0	1305.0	1335.0
TO2 (F)	166.0	160.0	168.0	165.0	168.0	170.0	166.0	163.0	165.0	167.0	166.0
TH2 (F)	145.0	146.0	145.0	146.0	148.0	148.0	144.0	143.0	145.0	146.0	146.0
DO2 (IN)	0.388	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
DH2 (IN)	0.326	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
Q050	-----	-----	-----	-----	-----	-----	0.138	0.151	0.081	0.022	0.017
Q051	0.025	-----	0.000	0.006	0.007	0.016	-----	-----	-----	0.008	-----
Q07H	3.497	2.534	2.880	2.083	3.811	3.232	2.131	2.876	2.276	3.928	2.657
T07H	107.450	100.568	112.111	101.079	100.569	104.408	104.463	107.574	110.489	103.418	100.637

CASE ---------- RUN SERIES 3.1A

GIMBAL PATTERN --- 3CA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 & Q51 ON THE THRUST CONE AT P17 AND P15 LOCATION RESPECTIVELY RUNS 454-458, AT P15 AND P17 RESPECTIVELY RUNS 459-461

NORMALIZED TEST DATA

RUN NUMBER	454	455	456	457	458	459	460	461
PC (PSIA)	613.0	613.0	585.0	608.0	595.0	592.0	590.0	591.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	162.0	170.0	158.0	165.0	165.0	165.0	163.0	163.0
TH2 (F)	150.0	152.0	143.0	151.0	153.0	150.0	150.0	150.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA							
P016	0.001	0.001	0.002	0.002	0.001	0.002	0.002	0.001
P018	0.001	0.001	0.002	0.001	0.001	-----	0.001	0.001
Q023	0.076	0.060	0.063	0.059	0.080	0.057	0.061	0.063
Q024	0.118	0.080	0.106	0.095	0.080	0.054	0.102	0.094
Q025	0.232	0.099	0.211	0.188	-----	0.171	0.194	0.158
Q030	0.008	0.031	0.019	0.010	-----	0.011	0.015	0.006
Q031	-----	0.028	0.025	0.021	0.034	0.025	0.040	0.029
Q032	-----	0.028	0.036	0.030	0.045	0.026	-----	0.025
Q033	0.012	0.005	0.006	0.005	0.015	0.009	0.007	0.011
Q034	0.020	0.014	0.012	0.008	0.020	0.011	0.015	0.013
Q036	0.070	-----	-----	0.038	0.057	0.051	0.010	0.056
Q037	0.076	-----	-----	-----	0.068	0.063	0.047	0.055
Q040	0.029	-----	-----	0.020	0.033	-----	0.026	0.036
Q041	0.021	0.021	0.013	0.022	0.022	0.015	0.024	0.018
Q050	0.124	0.063	0.044	0.071	0.122	0.088	0.101	0.093
Q051	0.005	0.005	0.005	0.001	0.005	0.017	0.005	0.001
Q07H	-----	7.640	11.678	12.411	13.129	11.733	12.897	13.806
T07H	103.099	103.099	108.034	103.947	106.218	106.757	107.119	106.937

CASE ---------- RUN SERIES 3, LOG 3.2A (Q50 @ P17, Q51 @ P15 RNS 470-473)

GIMBAL PATTERN --- 3CA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: ATTEMPT TO DETERMINE RECOVERY TEMPERATURE FOR LARGE DEFLECTIONS. Q7H DATA QUESTIONABLE DUE TO POORLY DEFINED GAGE PROPERTIES AT HIGH TEMP. Q51 DATA WHEN INSTALLED AT P15 WAS POOR, READINGS REPORTED GENERALLY LESS THAN THE NOISE LEVEL. Q50@P15,Q51@P17 RNS 463-469

NORMALIZED TEST DATA

RUN NUMBER	463	464	465	466	467	468	469	470	471	472	473
PC (PSIA)	630.0	600.0	609.0	614.0	600.0	601.0	616.0	600.0	589.0	608.0	630.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	170.0	142.0	168.0	167.0	166.0	166.0	162.0	170.0	162.0	172.0	162.0
TH2 (F)	153.0	133.0	156.0	153.0	151.0	150.0	150.0	150.0	145.0	154.0	146.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER OUTPUT

TRANSDUCER ID	(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
P016	0.002	0.002	0.002	0.002	0.003	0.002	0.002	-----	0.002	0.002	0.002
P018	0.001	0.001	0.001	0.001	0.001	0.001	0.001	-----	0.000	0.001	0.001
Q022	0.014	0.024	-----	0.024	0.017	0.030	0.019	0.012	0.020	0.021	0.011
Q023	0.054	0.064	0.066	0.063	0.064	0.067	0.065	0.059	0.069	0.062	0.046
Q024	0.072	0.095	0.097	0.112	0.098	0.099	0.085	0.088	0.092	0.087	0.073
Q025	0.181	0.226	0.219	0.184	0.211	0.222	0.192	0.194	0.205	0.197	0.190
Q030	0.012	0.015	0.011	0.015	0.005	0.013	0.014	0.013	0.010	0.012	0.013
Q031	0.019	0.017	0.030	0.028	0.035	0.017	0.018	0.009	0.016	0.018	0.019
Q032	0.029	0.031	0.039	0.037	0.046	0.038	0.034	0.036	0.032	0.032	0.028
Q033	0.001	0.002	0.009	0.002	0.001	0.008	0.004	0.009	0.003	0.007	0.007
Q034	0.011	0.011	0.012	0.011	0.011	0.015	0.012	0.014	0.011	0.010	0.015
Q036	0.021	0.044	0.048	0.046	0.047	0.047	0.043	0.023	0.073	0.021	0.072
Q037	0.013	0.058	0.052	0.024	0.021	0.083	0.053	0.084	0.059	0.041	0.041
Q040	0.008	0.013	0.011	0.020	0.011	0.040	0.022	-----	0.011	0.010	0.007
Q041	0.011	0.015	0.020	0.009	0.018	0.016	0.015	0.040	0.038	0.033	0.031
Q050	0.062	0.098	0.083	0.079	0.092	0.076	0.097	0.047	0.078	0.057	0.055
Q051	-----	0.008	0.008	-----	0.011	0.005	0.003	0.025	0.017	0.016	0.016
Q07H	10.614	13.799	13.138	11.024	14.357	16.299	13.738	12.187	12.833	12.941	11.958
T07H	501.587	832.133	830.213	1029.316	1053.333	1051.580	1025.973	1053.333	1073.005	1039.473	1003.174

CASE ---------- RUN SERIES 3, LOG 3.3

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 & 51 MOUNTED ON TC. THIS SERIES CONSISTS OF 15 RUNS, 8 NOT REPORTED DUE TO POOR COMBUSTOR PERFORMANCE. Q50 AND Q51 AT P17 AND P15 RESPECTIVELY.

NORMALIZED TEST DATA

RUN NUMBER	272	273	276	277	278	279	280	281
PC (PSIA)	722.0	733.0	726.0	711.0	711.0	717.0	689.0	705.0
ALT (MU HG A)	27.0	24.0	27.0	25.0	25.0	27.0	25.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	-----	166.0	170.0	167.0	166.0	166.0	168.0	163.0
TH2 (F)	-----	146.0	150.0	146.0	149.0	144.0	148.0	151.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA							
P016	0.002	0.002	0.002	0.002	-----	0.004	0.004	0.004
P018	0.001	0.000	-----	-----	-----	0.002	0.003	0.005
Q004	7.754	7.043	7.455	6.607	7.452	7.479	6.984	6.988
Q010	23.015	28.541	28.511	29.113	27.444	27.732	29.098	27.941
Q022	0.006	0.020	0.011	0.007	0.009	0.012	0.019	0.012
Q023	-----	-----	0.044	0.035	0.042	0.051	0.055	0.049
Q024	0.028	0.085	0.065	0.047	0.072	0.066	0.068	0.079
Q025	0.077	0.147	0.110	0.106	0.111	0.134	0.137	0.118
Q030	-----	0.005	0.006	0.007	0.007	0.007	0.007	0.003
Q031	-----	0.019	0.024	0.028	0.024	0.031	0.026	0.019
Q032	0.039	0.049	0.049	0.058	0.047	0.064	0.060	0.048
Q033	0.010	0.013	0.013	0.014	0.015	0.014	0.024	0.011
Q034	0.031	0.028	0.022	0.023	0.027	0.039	0.043	0.022
Q035	0.051	0.070	0.055	0.053	0.059	0.059	0.076	0.060
Q036	0.044	0.061	0.062	0.063	0.058	0.070	0.066	0.074
Q037	0.093	0.095	0.083	0.075	0.076	0.090	0.077	0.084
Q040	0.019	0.014	0.026	0.031	0.028	0.028	0.038	0.040
Q041	0.112	0.012	0.079	0.016	0.002	0.024	0.023	0.022
Q050	0.182	0.108	-----	-----	0.177	0.204	-----	0.316

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 3, LOG 3.3

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 & 51 MOUNTED ON TC. THIS SERIES CONSISTS OF 15 RUNS, 8 NOT REPORTED DUE TO POOR COMBUSTOR PERFORMANCE. Q50 AND Q51 AT P17 AND P15 RESPECTIVELY.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	272	273	276	277	278	279	280	281
PC (PSIA)	722.0	733.0	726.0	711.0	711.0	717.0	689.0	705.0
ALT (MU HG A)	27.0	24.0	27.0	25.0	25.0	27.0	25.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	-----	166.0	170.0	167.0	166.0	166.0	168.0	163.0
TH2 (F)	-----	146.0	150.0	146.0	149.0	144.0	148.0	151.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA							
Q051	0.000	0.007	0.014	-----	0.082	-----	-----	0.000
Q07H	2.288	2.526	3.733	-----	5.913	4.527	5.479	4.635
T07H	101.011	97.544	162.500	119.669	100.563	99.721	103.773	101.418

CASE ---------- RUN SERIES 3, LOGS 3.3A AND 3.4A

GIMBAL PATTERN --- 3CA MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: HEATED Q7H REPLACES Q7. ROD GAGES Q50 AND Q51 INSTALLED ON THRUST CONE. T7H TEMPS TABULATED ARE PRETEST GOAL,NO TEST VALUES RECORDED. Q50 & 51 POSN NOT SPECIFIED BUT APPEAR TO BE AT P17 AND P15 LOCATIONS RESPECTIVELY. DIFF BTWN 3.3A & 3.4A IS THE T7H TEMP DESRD.

NORMALIZED TEST DATA

RUN NUMBER	474	475	476	477	478
PC (PSIA)	685.0	707.0	706.0	690.0	690.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	156.0	157.0	158.0	153.0	155.0
TH2 (F)	150.0	150.0	150.0	146.0	150.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	0.001	-----	-----	0.001	0.001
P018	0.002	-----	0.001	0.001	0.002
Q022	0.011	0.012	0.001	0.031	0.020
Q023	0.079	0.056	0.064	0.065	0.073
Q024	0.104	0.091	0.095	0.103	0.105
Q025	0.241	0.198	0.232	0.235	0.249
Q030	0.005	0.015	0.010	0.020	0.019
Q031	0.020	0.011	0.016	0.021	0.020
Q032	0.047	0.036	0.046	0.048	0.044
Q033	0.010	0.004	0.011	0.006	0.011
Q034	0.017	0.014	0.015	0.010	0.015
Q036	0.065	0.054	0.001	0.066	0.055
Q037	0.050	0.054	0.055	0.057	0.063
Q040	0.035	0.036	0.031	0.030	0.032
Q041	0.019	0.018	0.015	0.015	0.012
Q050	0.171	0.124	0.102	0.124	0.124
Q051	0.005	0.007	0.010	0.001	0.001
Q07H	-----	6.634	9.257	14.010	9.274
T07H	-----	1011.315	810.198	828.985	828.985

CASE ---------- RUN SERIES 3, LOG 3.4

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 AND Q51 ON THRUST STRUCTURE APPEAR TO BE LOCATED AT P17 AND P15 LOCATIONS RESPECTIVELY.

NORMALIZED TEST DATA

RUN NUMBER	286	287	288	289	290
PC (PSIA)	706.0	722.0	706.0	694.0	705.0
ALT (MU HG A)	29.0	25.0	24.0	27.0	25.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	166.0	170.0	170.0	170.0	174.0
TH2 (F)	146.0	151.0	150.0	151.0	155.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P016	0.003	0.003	0.004	0.004	0.004
P018	-----	0.002	0.003	0.004	0.003
Q004	5.904	-----	-----	6.120	5.892
Q010	27.780	-----	-----	29.641	33.083
Q022	0.012	0.020	0.014	0.016	0.017
Q023	0.051	0.059	0.049	0.061	0.059
Q024	0.069	0.064	0.065	0.067	0.101
Q025	0.141	0.143	0.131	0.138	0.158
Q030	0.006	0.010	0.006	0.011	0.007
Q031	0.025	0.031	0.026	0.034	0.030
Q032	0.058	0.059	0.050	0.057	0.061
Q033	0.016	0.015	0.010	0.007	0.017
Q034	-----	0.032	0.024	0.026	0.033
Q035	-----	0.067	0.060	0.056	0.068
Q036	0.077	0.081	0.065	0.082	0.071
Q037	0.095	0.121	0.079	0.105	0.090
Q040	0.035	0.037	0.045	0.020	0.042
Q041	0.021	-----	0.020	0.045	0.022
Q050	0.191	0.177	0.173	0.198	0.170

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 3, LOG 3.4

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: Q7 REPLACED BY HEATED COMPONENT Q7H. ROD GAGES Q50 AND Q51 ON THRUST STRUCTURE APPEAR TO BE LOCATED AT P17 AND P15 LOCATIONS RESPECTIVELY.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	286	287	288	289	290
PC (PSIA)	706.0	722.0	706.0	694.0	705.0
ALT (MU HG A)	29.0	25.0	24.0	27.0	25.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	166.0	170.0	170.0	170.0	174.0
TH2 (F)	146.0	151.0	150.0	151.0	155.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q051	0.000	-----	0.000	0.000	0.009
Q07H	-----	2.426	3.048	1.494	2.789
T07H	-----	499.114	506.374	813.905	351.922

CASE ---------- RUN SERIES 4, LOG 4.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DEFINE ENVIRONMENT ON THE EXTERIOR OF AN INOPERATIVE ENGINE NO 5

NORMALIZED TEST DATA

RUN NUMBER	300	301	302
PC (PSIA)	632.0	638.0	623.0
ALT (MU HG A)	27.0	25.0	27.0
PO2 (PSIA)	1271.0	1271.0	1271.0
PH2 (PSIA)	1271.0	1266.0	1271.0
TO2 (F)	167.0	172.0	172.0
TH2 (F)	147.0	155.0	152.0
DO2 (IN)	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA		
P018	0.000	0.000	0.000
Q0G2	0.600	1.129	0.629
Q0G4	0.960	0.525	1.045
Q0G5	-----	-----	0.730
Q0G6	-----	-----	0.730
Q0G7	0.590	0.495	0.659
Q0G8	0.620	0.565	-----
Q0H1	2.410	-----	2.323
Q0H3	1.110	0.971	1.085
Q0H4	0.950	0.624	0.842
Q0H5	0.960	0.852	0.832
Q0H7	0.710	0.763	0.710
Q0H8	0.710	0.802	0.751
Q0J1	1.960	1.644	1.907
Q0J6	0.750	0.624	0.578
Q0J7	0.430	0.367	0.345
Q0J8	0.840	0.674	0.741
Q0J9	0.840	1.595	0.913
Q0N1	-----	-----	0.568

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DEFINE ENVIRONMENT ON THE EXTERIOR OF AN INOPERATIVE ENGINE NO 5

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	300	301	302
PC (PSIA)	632.0	638.0	623.0
ALT (MU HG A)	27.0	25.0	27.0
PO2 (PSIA)	1271.0	1271.0	1271.0
PH2 (PSIA)	1271.0	1266.0	1271.0
TO2 (F)	167.0	172.0	172.0
TH2 (F)	147.0	155.0	152.0
DO2 (IN)	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291

TRANSDUCER OUTPUT
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA

TRANSDUCER ID			
QON2	-----	0.783	0.812
QON3	-----	7.776	4.048
QON5	-----	9.213	5.478

CASE ---------- RUN SERIES 4, LOG 4.2

GIMBAL PATTERN --- 2 , MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DEFINE ENVIRONMENT OF INOPERATIVE ENGINE NO 3

NORMALIZED TEST DATA

RUN NUMBER	303	304	305	306
PC (PSIA)	665.0	633.0	656.0	645.0
ALT (MU HG A)	27.0	24.0	27.0	24.0
PO2 (PSIA)	1271.0	1271.0	1271.0	1271.0
PH2 (PSIA)	1266.0	1266.0	1266.0	1266.0
TO2 (F)	164.0	171.0	168.0	165.0
TH2 (F)	144.0	150.0	141.0	141.0
DO2 (IN)	0.335	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291	0.291

TRANSDUCER ID				TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA
P018	0.000	0.000	0.000	0.000
Q0G2	0.323	0.929	0.385	0.490
Q0G4	0.342	0.519	0.434	-----
Q0G5	0.684	0.589	0.482	0.500
Q0G6	0.475	0.879	0.491	0.529
Q0G7	0.456	0.539	0.501	0.529
Q0G9	0.409	-----	0.453	-----
Q0H1	0.409	1.028	0.626	0.392
Q0H3	0.485	0.869	0.626	0.578
Q0H4	0.551	1.158	0.000	0.647
Q0H5	0.798	-----	0.954	0.901
Q0H6	-----	-----	-----	0.941
Q0H7	0.931	-----	0.944	1.029
Q0H8	1.331	-----	1.435	1.489
Q0J1	0.494	0.599	0.771	0.568
Q0J6	0.618	0.769	0.790	0.686
Q0J7	0.409	1.278	0.530	0.490
Q0J8	1.036	0.270	0.366	0.372
Q0J9	1.293	1.867	0.915	1.431

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.2

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DEFINE ENVIRONMENT OF INOPERATIVE ENGINE NO 3

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	303	304	305	306
PC (PSIA)	665.0	633.0	656.0	645.0
ALT (MU HG A)	27.0	24.0	27.0	24.0
PO2 (PSIA)	1271.0	1271.0	1271.0	1271.0
PH2 (PSIA)	1266.0	1266.0	1266.0	1266.0
TO2 (F)	164.0	171.0	168.0	165.0
TH2 (F)	144.0	150.0	141.0	141.0
DO2 (IN)	0.335	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291	0.291

TRANSDUCER ID				TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA
QON1	0.000	0.000	-----	-----
QON2	0.200	0.240	0.193	0.216
QON3	0.000	0.280	0.048	-----
QON5	0.203	0.499	0.173	0.110

CASE ---------- RUN SERIES 4, LOG 4.2A

GIMBAL PATTERN --- 2A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NO 2 ENGINE OUT WITH NOZZLE INSTRUMENTED. LOCATION OF EXTERIOR GAGE ROW M NOT DEFINED IN DATA FOR THIS RUN. FULL SCALE DISTANCES FWD OF NOZZLE EXIT PLANE ARE QM1 (1 INCH),QM6 (16),QM7 (19) AND QM8 (22)

NORMALIZED TEST DATA

RUN NUMBER	358	359	360
PC (PSIA)	683.0	656.0	656.0
ALT (MU HG A)	27.0	27.0	30.0
PO2 (PSIA)	1271.0	1271.0	1271.0
PH2 (PSIA)	1266.0	1266.0	1266.0
TO2 (F)	161.0	167.0	158.0
TH2 (F)	144.0	147.0	143.0
DO2 (IN)	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC		
Q0M1	0.796	0.780	1.127
Q0M6	0.675	0.443	0.559
Q0M7	0.564	0.424	0.472
Q0M8	1.175	0.867	0.819
Q001	-----	2.755	4.046
Q002	-----	-----	3.372
Q003	2.350	3.266	3.218
Q004	5.811	4.480	-----
Q008	1.999	2.601	2.033
Q009	2.665	2.890	2.216
Q010	1.934	1.830	2.572
Q011	1.046	1.792	-----
Q013	2.267	2.582	2.331
Q014	1.101	1.021	1.069
Q015	2.415	3.170	2.784
Q016	1.397	1.638	1.590
Q017	1.777	1.965	1.445
Q019	1.009	2.168	1.753
Q022	0.008	0.010	0.000

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.2A

GIMBAL PATTERN --- 2A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NO 2 ENGINE OUT WITH NOZZLE INSTRUMENTED. LOCATION OF EXTERIOR GAGE ROW M NOT DEFINED IN DATA FOR THIS RUN. FULL SCALE DISTANCES FWD OF NOZZLE EXIT PLANE ARE QM1 (1 INCH),QM6 (16),QM7 (19) AND QM8 (22)

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	358	359	360
PC (PSIA)	683.0	656.0	656.0
ALT (MU HG A)	27.0	27.0	30.0
PO2 (PSIA)	1271.0	1271.0	1271.0
PH2 (PSIA)	1266.0	1266.0	1266.0
TO2 (F)	161.0	167.0	158.0
TH2 (F)	144.0	147.0	143.0
DO2 (IN)	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC		
Q023	0.069	0.052	0.007
Q024	0.099	0.081	0.021
Q025	0.177	0.159	0.059
Q031	0.020	0.018	0.013
Q052	3.988	3.671	3.854

CASE ---------- RUN SERIES 4, LOG 4.3

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF BASE ENVIRONMENT WITH A SINGLE 7.5 DEG ACTUATOR FAILURE INBOARD ON ENGINE NO 4.
(RUNS 234 AND 234A LABLED THE SAME)

NORMALIZED TEST DATA

RUN NUMBER	206	207	208	209	234	234
PC (PSIA)	626.0	610.0	611.0	615.0	680.0	621.0
ALT (MU HG A)	22.0	27.0	25.0	26.0	27.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	160.0	163.0	155.0	161.0	170.0	161.0
TH2 (F)	143.0	145.0	132.0	143.0	155.0	146.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.355	0.355	0.355	0.355	0.355	0.355
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
P018	0.000	0.000	0.000	-----	-----	-----
Q001	-----	-----	-----	-----	6.543	5.323
Q002	4.170	3.958	5.162	3.802	4.117	3.867
Q003	7.017	7.957	7.592	8.067	8.346	7.999
Q004	5.795	6.040	5.979	6.228	5.595	6.279
Q008	9.995	10.558	12.630	11.869	9.471	11.337
Q009	7.612	8.921	8.999	8.776	8.039	8.976
Q010	19.899	25.757	31.031	31.127	28.756	31.122
Q011	6.441	7.170	7.541	8.005	-----	5.282
Q013	4.139	4.683	4.737	5.580	-----	3.867
Q014	16.830	18.162	15.722	18.395	13.012	15.948
Q015	7.269	7.770	8.999	8.529	11.060	-----
Q016	7.077	7.843	8.389	7.820	9.480	8.966
Q017	5.381	4.631	4.262	4.347	3.959	4.112
Q018	4.725	5.325	4.696	4.850	-----	3.918
Q019	4.816	4.838	4.541	4.624	3.550	4.071
Q022	-----	-----	-----	-----	0.008	0.005
Q023	0.036	0.037	0.037	0.035	-----	-----
Q024	0.042	0.038	0.037	0.042	0.035	0.041

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.3

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF BASE ENVIRONMENT WITH A SINGLE 7.5 DEG ACTUATOR FAILURE INBOARD ON ENGINE NO 4.
(RUNS 234 AND 234A LABLED THE SAME)

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	206	207	208	209	234	234
PC (PSIA)	626.0	610.0	611.0	615.0	680.0	621.0
ALT (MU HG A)	22.0	27.0	25.0	26.0	27.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	160.0	163.0	155.0	161.0	170.0	161.0
TH2 (F)	143.0	145.0	132.0	143.0	155.0	146.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.355	0.355	0.355	0.355	0.355	0.355
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
Q025	-----	0.069	0.073	-----	0.033	0.052
Q030	-----	0.000	0.012	-----	-----	-----
Q032	0.027	0.042	0.032	0.041	-----	-----
Q052	5.381	6.299	6.341	6.556	-----	-----

CASE ---------- RUN SERIES 4, LOG 4.4

GIMBAL PATTERN --- 4A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: DUAL ACTUATOR FAILURE ON ENGINE NO 3 AT 7.5 DEG WITH 210 INCH HEAT SHIELD . NOTE THAT THIS DEFLECTION PATTERN DOES NOT GIVE MAXIMUM HEATING FOR DUAL 7.5 DEG FAIL.

NORMALIZED TEST DATA

RUN NUMBER	307	308	309	310
PC (PSIA)	667.0	572.0	579.0	606.0
ALT (MU HG A)	27.0	27.0	27.0	26.0
PO2 (PSIA)	1345.0	1345.0	1345.0	1345.0
PH2 (PSIA)	1335.0	1335.0	1335.0	1335.0
TO2 (F)	163.0	158.0	143.0	155.0
TH2 (F)	143.0	136.0	126.0	134.0
DO2 (IN)	0.335	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P016	0.001	0.002	0.001	0.001
P017	0.000	0.000	0.000	0.000
P018	0.000	0.000	0.000	0.000
Q001	3.354	6.629	5.556	4.172
Q003	3.155	3.237	3.362	3.202
Q004	2.227	2.917	2.500	2.805
Q008	3.155	3.547	3.908	3.588
Q010	2.445	3.016	3.351	2.951
Q011	2.208	2.143	2.063	2.211
Q013	3.174	3.525	3.395	3.108
Q014	1.516	1.447	1.495	1.909
Q016	1.488	1.447	1.310	1.439
Q021	0.007	0.000	0.000	0.000
Q023	0.085	0.095	0.088	0.064
Q024	0.108	0.108	0.117	0.098
Q025	0.144	0.221	0.191	0.183
Q030	-----	0.006	0.005	0.009
Q034	0.024	0.035	0.039	0.045
Q035	0.027	0.052	0.046	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.4

GIMBAL PATTERN --- 4A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: DUAL ACTUATOR FAILURE ON ENGINE NO 3 AT 7.5 DEG WITH 210 INCH HEAT SHIELD . NOTE THAT THIS DEFLECTION PATTERN DOES NOT GIVE MAXIMUM HEATING FOR DUAL 7.5 DEG FAIL.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	307	308	309	310
PC (PSIA)	667.0	572.0	579.0	606.0
ALT (MU HG A)	27.0	27.0	27.0	26.0
PO2 (PSIA)	1345.0	1345.0	1345.0	1345.0
PH2 (PSIA)	1335.0	1335.0	1335.0	1335.0
TO2 (F)	163.0	158.0	143.0	155.0
TH2 (F)	143.0	136.0	126.0	134.0
DO2 (IN)	0.335	0.335	0.335	0.335
DH2 (IN)	0.291	0.291	0.291	0.291

TRANSDUCER ID				TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA
Q036	0.033	0.084	0.091	0.091
Q037	0.034	0.071	0.092	0.088
Q043	0.129	0.088	0.131	0.058

CASE ---------- RUN SERIES 4, LOG 4.5.1A

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESIGATION OF OUTBOARD ENGINE OUT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST STRUCTURE COMPLIANCE. ALSO SEE LOG 4.5.1B FOR ADDITIONAL DATA . NON FLOWING NOZZLE AT POSITION NO 3.

NORMALIZED TEST DATA

RUN NUMBER	445	446	447	448	449
PC (PSIA)	665.0	674.0	666.0	687.0	682.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1750.0	1350.0	1350.0	1350.0	1350.0
PH2 (PSIA)	1090.0	1432.0	1432.0	1432.0	1432.0
TO2 (F)	160.0	161.0	160.0	158.0	159.0
TH2 (F)	166.0	160.0	159.0	153.0	162.0
DO2 (IN)	0.388	0.361	0.361	0.361	0.361
DH2 (IN)	0.335	0.291	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC				
Q001	3.920	4.310	3.680	-----	4.810
Q002	4.810	5.750	5.850	-----	-----
Q003	6.720	6.440	5.720	-----	5.630
Q004	5.680	5.500	4.040	4.960	4.380
Q008	7.630	8.330	-----	9.340	8.230
Q009	7.960	10.060	8.660	9.700	10.050
Q010	4.330	5.310	3.690	3.790	3.760
Q011	1.290	1.790	1.070	1.830	1.540
Q013	2.500	3.400	3.020	4.080	3.840
Q014	2.490	3.060	3.570	-----	3.640
Q015	-----	6.150	-----	-----	-----
Q016	2.780	2.210	2.580	2.750	2.640
Q017	2.590	2.630	2.490	3.020	2.740
Q023	0.108	0.104	0.111	0.080	0.107
Q025	0.236	0.266	0.281	0.236	0.288
Q031	-----	0.064	0.061	0.045	0.048
Q032	0.075	0.082	0.095	0.081	0.082
Q044	0.134	0.168	0.164	0.156	0.151
Q053	0.064	0.090	0.078	0.078	0.075

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.5.1A

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESIGATION OF OUTBOARD ENGINE OUT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST STRUCTURE COMPLIANCE. ALSO SEE LOG 4.5.1B FOR ADDITIONAL DATA . NON FLOWING NOZZLE AT POSITION NO 3.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	445	446	447	448	449
PC (PSIA)	665.0	674.0	666.0	687.0	682.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1750.0	1350.0	1350.0	1350.0	1350.0
PH2 (PSIA)	1090.0	1432.0	1432.0	1432.0	1432.0
TO2 (F)	160.0	161.0	160.0	158.0	159.0
TH2 (F)	166.0	160.0	159.0	153.0	162.0
DO2 (IN)	0.388	0.361	0.361	0.361	0.361
DH2 (IN)	0.335	0.291	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC				
Q054	1.590	1.820	1.900	1.760	1.790
Q055	0.300	0.310	0.240	0.330	0.320
Q24T	0.130	0.129	0.135	0.115	0.136

CASE ---------- RUN SERIES 4, LOG 4.5.1B

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF OUTBOARD ENGINE OUT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST STRUCTURE COMPLIANCE. ALSO SEE LOG 4.5.1A DATA. NON FLOWING NOZZLE AT POSITION NO 3.

NORMALIZED TEST DATA

RUN NUMBER	498	499	519	520	521	522
PC (PSIA)	733.0	733.0	721.0	732.0	722.0	718.0
ALT (MU HG A)	25.0	27.0	23.0	27.0	27.0	25.0
PO2 (PSIA)	1295.0	1295.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1385.0	1385.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	160.0	156.0	156.0	162.0	161.0	159.0
TH2 (F)	160.0	162.0	160.0	160.0	162.0	153.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q006	4.830	4.820	5.200	4.500	4.360	5.190
Q007	4.020	3.650	3.380	3.760	3.410	3.380
Q015	5.020	6.760	5.690	3.030	5.150	6.800
Q019	5.780	6.210	5.620	6.600	6.560	6.740
Q020	0.001	0.002	-----	-----	0.001	0.001
Q021	0.011	0.004	-----	-----	-----	-----
Q022	0.026	0.031	0.023	0.027	0.031	0.018
Q030	0.018	0.040	0.029	0.036	0.024	0.027
Q033	0.026	0.038	0.040	0.023	0.033	0.029
Q034	0.049	0.059	0.064	0.042	0.054	0.058
Q035	0.140	0.136	0.135	0.135	0.137	0.133
Q036	0.106	0.107	0.116	0.111	-----	0.119
Q037	0.124	0.134	0.130	0.139	-----	0.121
Q038	-----	0.005	0.001	0.001	-----	0.001
Q040	0.031	0.023	0.035	0.022	0.024	0.018
Q041	0.020	0.018	0.021	0.022	0.021	0.030
Q043	-----	0.011	0.010	0.010	0.013	0.012
Q052	3.020	3.480	2.840	3.370	2.950	2.110
Q110	-----	-----	0.524	0.910	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.5.1B

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF OUTBOARD ENGINE OUT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST STRUCTURE COMPLIANCE. ALSO SEE LOG 4.5.1A DATA. NON FLOWING NOZZLE AT POSITION NO 3.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	498	499	519	520	521	522
PC (PSIA)	733.0	733.0	721.0	732.0	722.0	718.0
ALT (MU HG A)	25.0	27.0	23.0	27.0	27.0	25.0
PO2 (PSIA)	1295.0	1295.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1385.0	1385.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	160.0	156.0	156.0	162.0	161.0	159.0
TH2 (F)	160.0	162.0	160.0	160.0	162.0	153.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID				TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q111	-----	-----	-----	-----	0.360	0.360

CASE ---------- RUN SERIES 4, LOG 4.5.2A

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: OUTBOARD ENGINE OUT ENVIRONMENT WITH DEFLECTION CASES WHICH DO NOT INCLUDE THRUST STRUCTURE COMPLIANCE. SEE LOG 4.5.2B FOR ADDITIONAL DATA. NON-FLOWING NOZZLE AT POSITION NO. 3.

NORMALIZED TEST DATA

RUN NUMBER	506	507	508	509	510	511	512
PC (PSIA)	698.0	675.0	718.0	708.0	709.0	704.0	746.0
ALT (MU HG A)	27.0	27.0	27.0	25.0	20.0	23.0	27.0
PO2 (PSIA)	1295.0	1250.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1385.0	1335.0	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	166.0	160.0	158.0	155.0	161.0	164.0	154.0
TH2 (F)	160.0	156.0	161.0	155.0	158.0	160.0	160.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
Q001	2.580	3.250	2.640	3.810	3.380	2.680	3.180
Q002	4.060	4.240	4.940	5.730	5.750	4.800	4.150
Q003	4.320	5.110	5.610	5.540	6.490	5.800	5.520
Q004	4.630	4.630	4.300	4.860	5.600	5.350	4.480
Q006	5.040	4.440	4.270	4.820	4.710	4.420	4.370
Q007	-----	3.750	3.640	3.920	4.180	3.620	3.540
Q008	6.700	9.100	6.240	7.560	7.700	7.060	8.390
Q009	7.980	8.760	8.000	7.510	7.890	7.800	9.750
Q010	4.050	3.430	2.910	2.890	3.260	3.100	2.990
Q011	1.630	1.120	0.740	0.770	0.720	0.790	2.060
Q013	4.680	2.600	2.380	2.830	1.710	1.620	3.760
Q014	3.320	2.260	1.830	2.210	1.760	1.970	1.900
Q015	5.330	4.850	3.300	5.410	3.550	2.660	6.680
Q016	2.140	1.940	1.930	1.810	1.650	1.480	2.780
Q017	2.600	2.230	2.360	2.240	2.240	2.240	2.160
Q019	6.780	6.550	5.710	6.040	5.500	5.210	6.690
Q024	-----	-----	2.340	1.750	1.980	1.970	1.840
Q025	0.810	0.980	0.800	0.890	0.910	0.920	0.860
Q046	0.520	-----	0.430	0.340	0.320	0.410	0.320

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.5.2A

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: OUTBOARD ENGINE OUT ENVIRONMENT WITH DEFLECTION CASES WHICH DO NOT INCLUDE THRUST STRUCTURE COMPLIANCE. SEE LOG 4.5.2B FOR ADDITIONAL DATA. NON-FLOWING NOZZLE AT POSITION NO. 3.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	506	507	508	509	510	511	512
PC (PSIA)	698.0	675.0	718.0	708.0	709.0	704.0	746.0
ALT (MU HG A)	27.0	27.0	27.0	25.0	20.0	23.0	27.0
PO2 (PSIA)	1295.0	1250.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1385.0	1335.0	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	166.0	160.0	158.0	155.0	161.0	164.0	154.0
TH2 (F)	160.0	156.0	161.0	155.0	158.0	160.0	160.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
Q052	1.920	2.310	1.920	2.870	2.720	2.720	2.300
Q054	1.010	0.840	1.010	1.080	0.890	0.800	1.120
Q110	1.330	1.480	1.260	-----	-----	-----	1.000
Q111A	-----	-----	-----	1.400	-----	1.620	-----

CASE ---------- RUN SERIES 4, LOG 4.5.2B

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: OUTBOARD ENGINE OUT ENVIRONMENT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST SRUCTURE COMPLIANCE. SEE LOG 4.5.2A FOR ADDITIONAL DATA. INTERSTAGE GAGES 26-29 AT 29.2 DEGREES. NON-FLOWING NOZZLE IN POSITION NO 3.

NORMALIZED TEST DATA

RUN NUMBER	513	514	515	516	517	518
PC (PSIA)	682.0	708.0	714.0	740.0	730.0	719.0
ALT (MU HG A)	28.0	27.0	24.0	27.0	28.0	22.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1245.0	1245.0	1245.0	1245.0	1245.0	1245.0
TO2 (F)	162.0	156.0	160.0	162.0	156.0	160.0
TH2 (F)	156.0	160.0	160.0	160.0	160.0	156.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q020	0.020	0.012	0.010	0.009	0.011	0.058
Q022	0.181	0.111	0.160	0.103	0.186	0.124
Q023	-----	2.740	-----	1.930	2.140	1.660
Q026	-----	0.360	-----	0.158	0.178	-----
Q027	0.642	1.580	-----	-----	1.460	1.870
Q028	2.740	1.400	1.580	-----	1.450	1.400
Q029	0.320	0.413	0.246	0.306	0.249	0.308
Q030	0.072	0.042	0.078	0.069	0.111	0.097
Q031	1.250	1.230	1.450	1.410	1.140	1.140
Q032	-----	0.904	1.220	0.578	0.862	1.400
Q035	0.549	0.404	0.448	0.496	0.442	0.500
Q036	1.210	1.210	1.480	1.150	1.640	1.262
Q037	1.520	2.110	1.240	2.170	2.070	2.040
Q038	0.164	0.322	0.274	0.186	0.160	0.239
Q040	1.050	0.896	0.980	0.885	0.760	0.740
Q043	0.146	0.135	0.123	-----	0.124	0.087
Q044	0.236	0.220	0.276	0.140	0.204	0.381
Q120	0.544	0.515	-----	-----	-----	-----
Q121	-----	-----	1.590	1.720	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 4, LOG 4.5.2B

GIMBAL PATTERN --- 2 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: OUTBOARD ENGINE OUT ENVIRONMENT WITH DEFLECTION CASE WHICH DOES NOT INCLUDE THRUST SRUCTURE COMPLIANCE. SEE LOG 4.5.2A FOR ADDITIONAL DATA. INTERSTAGE GAGES 26-29 AT 29.2 DEGREES. NON-FLOWING NOZZLE IN POSITION NO 3.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	513	514	515	516	517	518
PC (PSIA)	682.0	708.0	714.0	740.0	730.0	719.0
ALT (MU HG A)	28.0	27.0	24.0	27.0	28.0	22.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1245.0	1245.0	1245.0	1245.0	1245.0	1245.0
TO2 (F)	162.0	156.0	160.0	162.0	156.0	160.0
TH2 (F)	156.0	160.0	160.0	160.0	160.0	156.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID				TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q122	-----	-----	-----	-----	0.635	0.735

CASE ---------- RUN SERIES 5, LOG 5.1

GIMBAL PATTERN --- 5 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF SINGLE ACTUATOR FAILURE EFFECTS. ACTUATOR FAILED AT 5 DEGREES INBOARD.
NOTE CASES 216, 216A AND 218, 218A

NORMALIZED TEST DATA

RUN NUMBER	210	212	213	214	215	216	216	217	218	218	233
PC (PSIA)	610.0	623.0	632.0	626.0	639.0	639.0	621.0	615.0	607.0	615.0	627.0
ALT (MU HG A)	27.0	24.0	25.0	21.0	25.0	26.0	23.0	27.0	23.0	23.0	23.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1190.0	1115.0	1115.0	1115.0	1115.0	1115.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1240.0	1165.0	1165.0	1165.0	1165.0	1165.0
TO2 (F)	158.0	156.0	163.0	162.0	158.0	156.0	153.0	160.0	156.0	156.0	152.0
TH2 (F)	138.0	135.0	145.0	145.0	140.0	140.0	136.0	138.0	143.0	143.0	129.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
P016	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.000	0.000	0.001	-----
P017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-----
P018	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q001	-----	6.361	5.610	-----	6.191	5.905	4.325	6.114	4.571	5.631	5.997
Q002	-----	5.995	5.890	7.118	5.974	6.478	4.854	6.289	5.841	5.724	7.600
Q003	6.071	6.087	-----	7.007	5.855	6.923	5.547	5.580	6.789	5.354	6.864
Q004	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	7.217
Q008	-----	9.384	10.530	10.328	9.297	10.682	9.383	9.033	9.693	9.280	10.685
Q009	-----	8.318	9.180	8.067	8.387	8.901	8.620	8.447	7.923	8.529	9.878
Q010	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3.498
Q011	4.372	3.094	3.430	3.806	2.680	4.025	-----	2.805	3.405	3.093	2.641
Q013	4.486	5.437	6.710	5.290	6.449	8.130	-----	6.330	7.809	6.988	4.223
Q014	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	9.314
Q015	-----	5.843	7.500	6.926	6.745	7.537	8.009	7.286	7.424	7.687	6.280
Q016	4.952	2.465	3.990	2.887	2.967	4.283	3.674	3.278	4.238	-----	2.943
Q017	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3.770
Q018	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4.425
Q019	4.569	4.311	4.360	5.310	4.747	4.530	4.244	4.686	4.165	4.481	4.647
Q022	0.015	0.000	0.020	0.000	0.012	0.033	0.000	0.000	0.014	0.018	0.009

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 5, LOG 5.1

GIMBAL PATTERN --- 5 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF SINGLE ACTUATOR FAILURE EFFECTS. ACTUATOR FAILED AT 5 DEGREES INBOARD.
NOTE CASES 216, 216A AND 218, 218A

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	210	212	213	214	215	216	216	217	218	218	233
PC (PSIA)	610.0	623.0	632.0	626.0	639.0	639.0	621.0	615.0	607.0	615.0	627.0
ALT (MU HG A)	27.0	24.0	25.0	21.0	25.0	26.0	23.0	27.0	23.0	23.0	23.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1190.0	1115.0	1115.0	1115.0	1115.0	1115.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1240.0	1165.0	1165.0	1165.0	1165.0	1165.0
TO2 (F)	158.0	156.0	163.0	162.0	158.0	156.0	153.0	160.0	156.0	156.0	152.0
TH2 (F)	138.0	135.0	145.0	145.0	140.0	140.0	136.0	138.0	143.0	143.0	129.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA										
Q023	0.042	0.041	0.038	0.046	0.044	0.027	0.027	0.031	0.033	0.041	0.046
Q024	0.049	0.051	0.013	0.012	0.053	0.035	0.046	0.037	0.041	0.049	-----
Q025	0.071	0.072	0.062	0.062	0.065	0.048	0.047	0.044	0.046	0.063	0.089
Q034	-----	0.021	0.069	0.066	0.026	0.018	0.035	0.020	0.029	0.027	-----
Q035	-----	0.040	0.029	0.034	0.040	0.030	0.034	-----	0.034	0.035	-----
Q036	0.031	0.030	0.040	0.032	0.034	0.027	0.027	0.028	0.029	0.031	0.036

CASE ---------- RUN SERIES 5, LOG 5.2

GIMBAL PATTERN --- 6 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO INVESTIGATE THE EFFECTS OF SINGLE ACTUATOR FAILURE INBOARD. ACTUATOR FAILED AT 3 DEGREES.

NORMALIZED TEST DATA

RUN NUMBER	219	220	221	222	223	224	225	226	228	229
PC (PSIA)	636.0	620.0	620.0	605.0	635.0	652.0	646.0	603.0	668.0	630.0
ALT (MU HG A)	22.0	28.0	-----	23.0	25.0	24.0	18.0	27.0	20.0	-----
PO2 (PSIA)	1165.0	1140.0	1140.0	1140.0	1140.0	1215.0	1140.0	1115.0	1115.0	1115.0
PH2 (PSIA)	1215.0	1190.0	1190.0	1190.0	1190.0	1265.0	1190.0	1165.0	1165.0	1165.0
TO2 (F)	155.0	140.0	-----	151.0	155.0	158.0	160.0	146.0	166.0	158.0
TH2 (F)	133.0	126.0	-----	131.0	135.0	140.0	141.0	132.0	146.0	139.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER OUTPUT

TRANSDUCER ID	(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA									
P016	-----	0.002	0.002	0.001	0.001	-----	0.001	0.002	0.002	0.001
P017	-----	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
P018	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Q001	4.551	3.863	4.567	2.862	4.399	4.440	5.254	6.184	5.327	3.531
Q002	6.270	4.760	5.861	3.531	5.514	6.834	6.956	7.714	7.777	6.691
Q003	8.695	6.840	6.442	4.314	6.907	-----	-----	10.324	9.130	-----
Q004	-----	7.778	7.757	6.122	8.191	8.239	8.609	8.993	7.777	-----
Q008	11.328	10.122	11.621	8.461	11.545	-----	10.077	11.215	11.013	9.661
Q009	9.550	9.266	11.009	9.590	7.912	9.887	9.725	8.332	6.755	8.597
Q010	4.193	2.671	3.333	3.510	3.155	-----	2.788	2.568	-----	-----
Q011	1.789	1.998	1.713	2.236	1.801	1.687	-----	-----	2.204	-----
Q013	3.587	3.191	4.190	4.628	4.031	4.207	-----	-----	3.274	-----
Q014	-----	-----	-----	-----	-----	1.851	-----	1.866	1.798	3.631
Q015	5.068	4.730	5.189	5.672	5.026	4.236	4.011	3.469	3.245	4.013
Q016	2.435	2.528	2.294	3.134	2.329	2.811	2.534	1.908	2.157	2.438
Q017	-----	-----	-----	-----	-----	3.354	-----	3.396	3.822	3.250
Q018	-----	-----	-----	-----	-----	3.092	2.984	2.002	2.252	3.070
Q019	1.411	1.407	1.825	3.865	3.314	2.976	3.111	2.432	2.526	2.949
Q022	0.006	0.016	0.040	0.000	0.007	0.012	0.014	0.009	0.011	0.016

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 5, LOG 5.2

GIMBAL PATTERN --- 6 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO INVESTIGATE THE EFFECTS OF SINGLE ACTUATOR FAILURE INBOARD. ACTUATOR FAILED AT 3 DEGREES.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	219	220	221	222	223	224	225	226	228	229
PC (PSIA)	636.0	620.0	620.0	605.0	635.0	652.0	646.0	603.0	668.0	630.0
ALT (MU HG A)	22.0	28.0	-----	23.0	25.0	24.0	18.0	27.0	20.0	-----
PO2 (PSIA)	1165.0	1140.0	1140.0	1140.0	1140.0	1215.0	1140.0	1115.0	1115.0	1115.0
PH2 (PSIA)	1215.0	1190.0	1190.0	1190.0	1190.0	1265.0	1190.0	1165.0	1165.0	1165.0
TO2 (F)	155.0	140.0	-----	151.0	155.0	158.0	160.0	146.0	166.0	158.0
TH2 (F)	133.0	126.0	-----	131.0	135.0	140.0	141.0	132.0	146.0	139.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA									
Q023	0.013	0.044	0.082	0.037	0.035	0.059	0.055	0.050	0.054	0.057
Q024	0.062	0.062	0.093	0.044	0.046	-----	-----	-----	-----	-----
Q025	0.096	0.088	0.130	0.055	0.070	0.125	0.104	0.090	0.114	0.128
Q034	0.034	0.059	0.027	0.020	-----	-----	-----	-----	-----	-----
Q035	-----	0.038	0.039	0.044	-----	-----	-----	-----	-----	-----
Q036	0.037	0.040	0.040	0.030	0.031	0.049	0.033	0.036	0.044	0.042

CASE ---------- RUN SERIES 6, LOG 6.1

GIMBAL PATTERN --- 4A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INSTRUMENTED FLOWING NOZZLE INSTALLED WITH QN2 OPPOSITE ENGINE NO 3 TO EVALUATE HEATING OF NOZZLE LIP WITH DUAL 7.5 DEG ACTUATOR FAILURE

NORMALIZED TEST DATA

RUN NUMBER	235	236	238	239	240	241	242	243	244	245
PC (PSIA)	670.0	642.0	643.0	645.0	655.0	655.0	656.0	640.0	646.0	657.0
ALT (MU HG A)	27.0	10.0	27.0	26.0	25.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1215.0	1115.0	1115.0	1115.0	1115.0	1115.0	1115.0	1115.0	1115.0	1090.0
PH2 (PSIA)	1265.0	1165.0	1165.0	1165.0	1165.0	1165.0	1165.0	1165.0	1165.0	1140.0
TO2 (F)	154.0	-----	173.0	173.0	161.0	163.0	171.0	166.0	168.0	163.0
TH2 (F)	141.0	-----	150.0	150.0	142.0	143.0	146.0	145.0	150.0	145.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC									
N001	-----	-----	-----	4.017	4.776	3.580	3.285	-----	-----	4.944
N002	65.181	59.558	57.499	54.773	62.911	55.384	62.622	53.127	51.264	67.144
Q002	1.472	4.686	-----	4.194	3.802	4.506	4.412	4.424	4.608	4.261
Q003	-----	3.465	-----	3.175	3.126	-----	1.195	3.051	3.786	2.751
Q004	-----	2.353	-----	-----	-----	-----	4.788	3.071	3.258	2.463
Q008	3.754	3.633	4.177	3.527	3.522	3.975	4.258	4.217	3.708	3.915
Q010	-----	2.294	2.919	2.724	2.634	2.817	2.592	2.182	3.238	2.299
Q013	1.811	1.565	1.966	1.744	2.277	2.190	1.888	1.807	1.458	1.501
Q015	1.830	2.146	2.624	3.008	3.242	3.068	2.832	3.150	3.062	2.742
Q016	-----	0.551	0.511	0.451	0.463	0.463	0.520	0.464	0.548	0.548
Q019	1.311	1.250	1.386	1.823	1.418	1.293	1.532	1.481	1.291	1.472
Q022	-----	0.010	0.010	0.007	-----	0.011	0.010	0.014	0.008	0.005
Q023	0.030	0.036	0.041	0.048	0.039	0.037	0.034	0.041	0.042	0.037
Q024	0.031	0.052	0.036	0.055	0.046	0.041	0.037	0.047	0.044	0.036
Q025	0.052	0.097	0.072	0.079	0.066	0.053	0.059	0.081	0.084	0.045
Q034	-----	0.016	0.014	0.018	0.017	0.018	0.017	0.017	0.019	0.015
Q035	0.067	0.032	-----	0.037	0.035	0.032	0.029	0.034	0.033	0.033
Q036	0.035	0.050	0.033	0.049	0.044	0.041	0.043	0.046	0.051	0.038
Q037	-----	-----	0.045	0.065	0.066	0.049	0.052	0.061	0.069	0.051

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 6, LOG 6.1

GIMBAL PATTERN --- 4A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INSTRUMENTED FLOWING NOZZLE INSTALLED WITH QN2 OPPOSITE ENGINE NO 3 TO EVALUATE HEATING OF NOZZLE LIP WITH DUAL 7.5 DEG ACTUATOR FAILURE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	235	236	238	239	240	241	242	243	244	245
PC (PSIA)	670.0	642.0	643.0	645.0	655.0	655.0	656.0	640.0	646.0	657.0
ALT (MU HG A)	27.0	10.0	27.0	26.0	25.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1215.0	1115.0	1115.0	1115.0	1115.0	1115.0	1115.0	1115.0	1115.0	1090.0
PH2 (PSIA)	1265.0	1165.0	1165.0	1165.0	1165.0	1165.0	1165.0	1165.0	1165.0	1140.0
TO2 (F)	154.0	-----	173.0	173.0	161.0	163.0	171.0	166.0	168.0	163.0
TH2 (F)	141.0	-----	150.0	150.0	142.0	143.0	146.0	145.0	150.0	145.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC									
0043	-----	0.026	-----	0.000	0.013	0.014	0.014	0.015	0.013	0.010

CASE ---------- RUN SERIES 6, LOG 6.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INSTRUMENTED FLOWING NOZZLE INSTALLED WITH GN2 OPPOSITE ENGINE 3 TO EVALUATE HEATING OF THE NOZZLE LIP WITH NO ENGINE DEFLECTIONS. LIP GAGES INSTALLED IN POSN 5.

NORMALIZED TEST DATA

RUN NUMBER	246	247	249	250	251	252
PC (PSIA)	628.0	662.0	651.0	633.0	618.0	623.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1215.0	1230.0	1115.0	1090.0	1090.0	1090.0
PH2 (PSIA)	1215.0	1287.0	1165.0	1135.0	1135.0	1135.0
TO2 (F)	172.0	170.0	171.0	170.0	168.0	169.0
TH2 (F)	152.0	146.0	150.0	150.0	146.0	145.0
DO2 (IN)	0.361	0.361	0.388	0.388	0.388	0.388
DH2 (IN)	0.326	0.326	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC					
N001	2.154	1.909	1.913	2.386	2.301	2.130
N002	1.298	-----	1.485	1.348	1.534	1.552
Q002	3.110	1.384	1.592	2.875	2.250	1.988
Q003	2.878	3.179	2.446	4.054	3.068	2.617
Q004	5.122	4.267	4.077	3.914	5.062	4.504
Q008	2.063	1.967	1.573	1.987	2.669	2.293
Q010	2.405	1.709	1.631	-----	-----	2.100
Q013	2.184	2.396	2.611	2.416	2.506	2.252
Q015	2.053	2.387	3.446	4.653	4.121	3.804
Q016	1.047	1.241	1.204	1.228	1.166	1.085
Q019	1.157	0.974	1.107	0.939	1.074	1.014
Q022	0.007	0.011	0.015	0.012	0.010	0.012
Q023	0.055	0.050	0.063	0.055	0.053	0.047
Q024	0.068	0.059	0.076	0.067	0.062	0.060
Q025	0.127	0.095	0.150	0.124	0.088	0.110
Q034	0.023	0.019	0.023	0.022	0.024	0.022
Q035	0.046	0.038	0.059	0.042	0.046	0.060
Q036	0.060	0.052	0.068	0.059	0.051	0.059
Q037	0.077	0.081	0.084	0.081	0.084	0.066

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 6, LOG 6.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INSTRUMENTED FLOWING NOZZLE INSTALLED WITH GN2 OPPOSITE ENGINE 3 TO EVALUATE HEATING OF THE NOZZLE LIP WITH NO ENGINE DEFLECTIONS. LIP GAGES INSTALLED IN POSN 5.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	246	247	249	250	251	252
PC (PSIA)	628.0	662.0	651.0	633.0	618.0	623.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1215.0	1230.0	1115.0	1090.0	1090.0	1090.0
PH2 (PSIA)	1215.0	1287.0	1165.0	1135.0	1135.0	1135.0
TO2 (F)	172.0	170.0	171.0	170.0	168.0	169.0
TH2 (F)	152.0	146.0	150.0	150.0	146.0	145.0
DO2 (IN)	0.361	0.361	0.388	0.388	0.388	0.388
DH2 (IN)	0.326	0.326	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC					
Q043	0.014	0.011	0.015	0.011	0.013	0.014

CASE ---------- RUN SERIES 7, LOG 7.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TESTS TO DETERMINE THRUST STRUCTURE HEATING WITH A LARGE HEAT SHIELD INTENDED TO SIMULATE A HEAT SHIELD FROM THE 6 ENGINE S-IV CONFIGURATION. ALTHOUGH 0.338 WAS LISTED ON ALL DATA SHEETS, THE DIAM. USED WAS PROB. 0.388 AS LISTED IN RUNS 175-183, LOG 8.1

NORMALIZED TEST DATA

RUN NUMBER	169	170	171	172	173	174
PC (PSIA)	654.0	639.0	614.0	593.0	608.0	620.0
ALT (MU HG A)	24.0	26.0	23.0	26.0	25.0	30.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	166.0	160.0	160.0	163.0	-----	-----
TH2 (F)	124.0	142.0	143.0	145.0	-----	-----
DO2 (IN)	0.338	0.338	0.338	0.338	0.338	0.338
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q002	-----	1.108	1.204	1.322	1.580	1.967
Q003	4.967	3.294	3.736	5.276	5.738	4.363
Q004	5.180	3.847	4.405	5.276	3.638	4.740
Q008	4.706	1.790	1.935	1.897	1.424	3.609
Q009	5.943	3.026	2.357	2.760	2.121	4.159
Q010	-----	2.799	3.860	2.856	3.035	2.977
Q011	2.097	3.353	2.563	2.526	2.412	2.324
Q013	1.566	3.462	2.182	3.187	1.975	1.366
Q014	1.652	1.444	1.431	1.375	1.414	1.305
Q015	4.436	3.561	2.347	2.792	2.744	3.211
Q016	3.208	2.364	2.347	2.057	2.162	2.569
Q017	-----	0.801	0.710	1.226	1.060	1.030
Q018	-----	0.969	1.606	0.917	0.873	0.805
Q019	2.542	1.108	1.441	1.492	1.507	1.743
Q023	0.027	0.024	-----	0.032	0.023	0.029
Q024	0.032	0.041	-----	0.048	0.036	0.044
Q025	0.056	0.088	0.096	0.092	0.083	0.067
Q031	0.009	0.014	0.013	0.023	0.015	0.023
Q032	0.017	0.027	0.026	-----	0.022	0.023

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 7, LOG 7.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TESTS TO DETERMINE THRUST STRUCTURE HEATING WITH A LARGE HEAT SHIELD INTENDED TO SIMULATE A HEAT SHIELD FROM THE 6 ENGINE S-IV CONFIGURATION. ALTHOUGH 0.338 WAS LISTED ON ALL DATA SHEETS, THE DIAM. USED WAS PROB. 0.388 AS LISTED IN RUNS 175-183, LOG 8.1

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	169	170	171	172	173	174
PC (PSIA)	654.0	639.0	614.0	593.0	608.0	620.0
ALT (MU HG A)	24.0	26.0	23.0	26.0	25.0	30.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1265.0	1265.0	1265.0
TO2 (F)	166.0	160.0	160.0	163.0	-----	-----
TH2 (F)	124.0	142.0	143.0	145.0	-----	-----
DO2 (IN)	0.338	0.338	0.338	0.338	0.338	0.338
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
0052	-----	1.533	2.532	-----	2.037	2.079

CASE ---------- RUN SERIES 8, LOG 8.1 AND 8.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOZZLE EXIT PLANE BASE PRESSURE USING PROBES PARALLEL TO (SERIES 8.2 RNS 179-183) AND NORMAL TO (SERIES 8.1 RUNS 175-178) THE NOZZLE CENTERLINE. PROBE MOUNTED BETWEEN ENGINES 2,3 AND 5.

NORMALIZED TEST DATA

RUN NUMBER	175	176	177	178	179	180	181	182	183
PC (PSIA)	643.0	639.0	650.0	623.0	634.0	622.0	-----	633.0	611.0
ALT (MU HG A)	25.0	24.0	26.0	23.0	24.0	16.0	-----	27.0	25.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1190.0	1190.0	1190.0	1190.0	1190.0	1190.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1240.0	1240.0	1240.0	1240.0	1240.0	1240.0
TO2 (F)	163.0	165.0	165.0	160.0	160.0	165.0	163.0	156.0	160.0
TH2 (F)	140.0	146.0	149.0	143.0	143.0	148.0	140.0	141.0	141.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
P SPECIA	0.064	0.061	0.056	0.063	0.088	0.098	0.110	-----	0.098
P017	0.001	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000
P018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q001	1.435	1.088	1.740	1.085	1.705	0.843	1.100	1.597	0.869
Q002	2.035	0.999	1.974	1.420	2.472	1.870	2.090	1.328	1.034
Q003	4.256	4.095	4.259	3.378	5.174	4.217	4.620	2.306	4.789
Q004	4.305	3.244	4.862	4.169	5.523	4.715	2.720	3.325	3.941
Q008	1.818	2.928	1.867	1.664	1.994	2.093	3.080	1.478	1.696
Q009	1.720	3.106	2.917	2.506	2.542	2.865	3.480	1.807	2.762
Q011	2.752	2.621	2.703	2.749	2.073	2.388	2.660	2.167	2.400
Q013	2.418	1.167	1.488	2.526	2.233	2.388	2.570	2.676	2.265
Q015	2.418	2.621	2.129	2.465	2.133	1.859	2.550	2.396	2.793
Q016	1.907	2.196	1.945	2.181	1.994	1.829	2.170	2.097	2.907
Q017	1.297	0.989	1.099	-----	1.206	0.914	0.910	0.919	1.065
Q019	1.288	1.622	1.468	1.755	1.126	1.219	2.370	1.448	1.893
Q022	0.013	0.014	0.016	0.013	0.010	0.005	0.014	0.012	0.010
Q023	0.052	0.044	0.049	0.047	0.042	0.022	0.050	0.048	0.047
Q025	0.149	0.104	0.113	0.104	0.098	0.065	0.087	0.076	0.084
Q031	0.026	0.016	0.018	-----	0.015	0.012	0.014	0.018	0.016

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 8, LOG 8.1 AND 8.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOZZLE EXIT PLANE BASE PRESSURE USING PROBES PARALLEL TO (SERIES 8.2 RNS 175-178) AND NORMAL TO (SERIES 8.1 RUNS 179-183) THE NOZZLE CENTERLINE. PROBE MOUNTED BETWEEN ENGINES 2,3 AND 5.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	175	176	177	178	179	180	181	182	183
PC (PSIA)	643.0	639.0	650.0	623.0	634.0	622.0	-----	633.0	611.0
ALT (MU HG A)	25.0	24.0	26.0	23.0	24.0	16.0	-----	27.0	25.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1190.0	1190.0	1190.0	1190.0	1190.0	1190.0
PH2 (PSIA)	1265.0	1265.0	1265.0	1240.0	1240.0	1240.0	1240.0	1240.0	1240.0
TO2 (F)	163.0	165.0	165.0	160.0	160.0	165.0	163.0	156.0	160.0
TH2 (F)	140.0	146.0	149.0	143.0	143.0	148.0	140.0	141.0	141.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q034	0.054	0.030	0.028	0.027	0.030	0.021	0.026	0.022	0.022
Q035	0.046	0.057	0.052	0.055	0.056	0.051	0.052	0.042	0.041

CASE ---------- RUN SERIES 9, LOG 9.1.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF POSSIBLE BOUNDARY LAYER EFFECTS. FILLER MATERIAL REMOVED FROM TURBINE EXHAUST MANIFOLD AND INJECTION HOLES, SO THAT THE INITIAL VACUUM IN THIS VOLUME WOULD TEND TO REMOVE A PORTION OF THE NOZZLE BOUNDARY LAYER

NORMALIZED TEST DATA

RUN NUMBER	311	312	313	314	315	327	328	329	330
PC (PSIA)	594.0	593.0	606.0	575.0	614.0	620.0	611.0	615.0	637.0
ALT (MU HG A)	25.0	25.0	27.0	24.0	23.0	26.0	23.0	27.0	24.0
PO2 (PSIA)	1345.0	1345.0	1375.0	1375.0	1090.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1335.0	1335.0	1345.0	1345.0	1135.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	158.0	153.0	153.0	145.0	153.0	153.0	163.0	152.0	160.0
TH2 (F)	143.0	138.0	136.0	132.0	137.0	137.0	150.0	137.0	143.0
DO2 (IN)	0.335	0.335	0.335	0.335	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.291	0.291	0.291	0.291	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
P016	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.000
P017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
P018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q001	0.968	1.513	0.970	1.319	1.359	1.050	0.517	0.586	0.774
Q002	1.596	1.364	0.876	1.671	1.801	1.437	0.569	0.997	1.002
Q003	3.990	3.815	2.086	-----	2.285	3.384	2.358	2.230	3.115
Q004	4.767	4.881	3.577	-----	3.438	4.546	4.696	4.254	5.070
Q008	2.405	2.025	1.189	1.880	1.616	1.753	2.472	2.353	2.461
Q009	2.926	2.110	1.690	2.715	1.740	1.927	2.772	2.137	2.847
Q011	2.554	2.611	2.659	2.748	2.162	2.762	2.348	2.333	2.857
Q013	3.341	3.187	3.577	2.726	3.551	-----	-----	2.836	3.135
Q015	2.809	2.185	2.732	3.715	2.532	2.722	2.813	2.682	3.135
Q016	2.373	1.972	-----	-----	-----	2.548	2.358	2.333	2.322
Q017	0.968	2.078	0.928	1.022	1.276	1.030	0.569	0.863	0.734
Q019	2.213	1.524	1.742	1.847	1.945	1.774	2.420	2.220	2.302
Q022	0.014	0.011	0.013	0.020	0.016	0.010	0.004	0.010	0.012
Q023	0.062	0.054	0.056	0.075	0.066	0.055	0.051	0.059	0.055
Q024	0.076	0.079	0.081	0.255	0.095	0.082	0.068	0.100	0.072
Q025	0.154	0.148	0.147	0.310	0.171	0.073	0.140	0.155	0.149

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 9, LOG 9.1.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF POSSIBLE BOUNDARY LAYER EFFECTS. FILLER MATERIAL REMOVED FROM TURBINE EXHAUST MANIFOLD AND INJECTION HOLES, SO THAT THE INITIAL VACUUM IN THIS VOLUME WOULD TEND TO REMOVE A PORTION OF THE NOZZLE BOUNDARY LAYER

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	311	312	313	314	315	327	328	329	330
PC (PSIA)	594.0	593.0	606.0	575.0	614.0	620.0	611.0	615.0	637.0
ALT (MU HG A)	25.0	25.0	27.0	24.0	23.0	26.0	23.0	27.0	24.0
PO2 (PSIA)	1345.0	1345.0	1375.0	1375.0	1090.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1335.0	1335.0	1345.0	1345.0	1135.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	158.0	153.0	153.0	145.0	153.0	153.0	163.0	152.0	160.0
TH2 (F)	143.0	138.0	136.0	132.0	137.0	137.0	150.0	137.0	143.0
DO2 (IN)	0.335	0.335	0.335	0.335	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.291	0.291	0.291	0.291	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q030	0.009	-----	0.008	0.012	0.010	0.004	0.007	0.003	0.006
Q034	0.034	0.025	0.024	0.027	0.026	0.023	0.024	0.016	0.025
Q035	0.060	0.071	0.067	0.070	0.063	-----	-----	-----	-----

CASE ---------- RUN SERIES 9, LOG 9.1.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF POSSIBLE BOUNDARY LAYER EFFECTS. FILLER MATERIAL REMOVED FROM TURBINE EXHAUST MANIFOLD AND INJECTION HOLES, SO THAT THE INITIAL VACUUM IN THIS VOLUME WOULD TEND TO REMOVE A PORTION OF THE NOZZLE BOUNDARY LAYER

NORMALIZED TEST DATA

RUN NUMBER	316	317	318	319	320	321	322	323	324
PC (PSIA)	597.0	620.0	620.0	637.0	642.0	620.0	642.0	631.0	606.0
ALT (MU HG A)	26.0	25.0	26.0	27.0	29.0	27.0	26.0	26.0	26.0
PO2 (PSIA)	1090.0	1140.0	1140.0	1125.0	1185.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1135.0	1185.0	1185.0	1170.0	1140.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	149.0	163.0	162.0	156.0	153.0	178.0	153.0	162.0	170.0
TH2 (F)	133.0	143.0	143.0	140.0	138.0	155.0	136.0	142.0	150.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER OUTPUT

TRANSDUCER ID	(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
P001	0.035	-----	0.022	0.022	0.023	0.021	0.017	0.023	0.021
P002	0.037	-----	0.033	-----	0.026	0.034	0.027	0.030	0.027
P003	-----	-----	0.030	0.020	0.022	0.029	0.025	0.028	0.027
P005	-----	-----	0.024	0.017	0.024	0.026	0.024	0.022	0.025
P006	0.022	-----	0.024	0.021	0.019	0.025	0.024	0.024	0.025
P007	0.030	-----	0.021	0.022	0.028	0.025	0.025	0.024	0.025
P008	0.020	-----	0.023	0.022	0.018	0.025	0.018	0.022	0.022
P011	0.035	-----	-----	-----	0.019	0.025	0.025	0.023	0.026
Q003	3.388	4.455	2.793	3.016	3.780	2.813	3.150	3.155	2.159
Q004	4.594	5.341	3.904	4.246	4.676	4.159	4.194	5.078	3.661
Q008	2.054	2.416	2.283	1.786	2.215	2.365	1.890	1.542	1.856
Q011	1.599	1.682	2.079	2.222	2.126	-----	1.969	1.532	1.147
Q013	2.837	2.630	3.038	2.778	4.026	3.252	3.406	2.955	3.713
Q015	2.371	2.334	3.272	1.984	1.801	1.437	1.664	1.542	1.877
Q016	-----	-----	-----	2.103	3.091	-----	2.136	2.644	3.170
Q019	1.482	1.896	1.937	1.012	-----	1.753	1.772	1.142	1.690
Q030	0.008	0.013	0.009	0.006	0.005	0.000	0.000	-----	-----
Q031	0.029	0.042	0.038	0.020	0.022	0.014	0.013	0.000	0.011
Q032	0.039	0.071	0.047	0.040	0.034	0.029	0.024	0.075	0.096

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 9, LOG 9.1.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: INVESTIGATION OF POSSIBLE BOUNDARY LAYER EFFECTS. FILLER MATERIAL REMOVED FROM TURBINE EXHAUST MANIFOLD AND INJECTION HOLES, SO THAT THE INITIAL VACUUM IN THIS VOLUME WOULD TEND TO REMOVE A PORTION OF THE NOZZLE BOUNDARY LAYER

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	316	317	318	319	320	321	322	323	324
PC (PSIA)	597.0	620.0	620.0	637.0	642.0	620.0	642.0	631.0	606.0
ALT (MU HG A)	26.0	25.0	26.0	27.0	29.0	27.0	26.0	26.0	26.0
PO2 (PSIA)	1090.0	1140.0	1140.0	1125.0	1185.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1135.0	1185.0	1185.0	1170.0	1140.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	149.0	163.0	162.0	156.0	153.0	178.0	153.0	162.0	170.0
TH2 (F)	133.0	143.0	143.0	140.0	138.0	155.0	136.0	142.0	150.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q036	0.078	-----	0.070	0.057	0.046	0.049	0.044	0.039	0.035
Q037	0.092	-----	0.091	0.083	0.076	0.054	0.071	0.063	0.047

CASE ---------- RUN SERIES 11, LOG 11.1

GIMBAL PATTERN --- 5A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 3

NORMALIZED TEST DATA

RUN NUMBER	403	404	405	406	407	402
PC (PSIA)	638.0	648.0	642.0	626.0	620.0	643.0
ALT (MU HG A)	27.0	27.0	26.0	25.0	25.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0	1210.0	1210.0	1210.0
TO2 (F)	163.0	155.0	150.0	157.0	165.0	162.0
TH2 (F)	143.0	138.0	135.0	140.0	147.0	145.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q001	2.530	2.820	2.780	2.060	2.170	2.280
Q002	4.140	3.990	4.700	3.940	2.980	3.120
Q003	6.830	6.740	6.710	-----	6.640	6.760
Q004	7.700	7.160	6.760	8.760	6.430	9.310
Q019	2.210	-----	2.320	2.330	1.960	2.130
Q022	0.021	0.007	0.023	0.014	0.005	0.021
Q024	0.097	0.089	0.013	0.108	0.039	0.115
Q025	0.198	0.191	0.246	0.228	0.090	0.231
Q030	0.026	0.017	0.033	0.026	0.015	0.020
Q031	0.046	0.048	0.050	0.050	0.023	0.055
Q032	0.062	0.066	0.074	0.063	0.032	0.067
Q033	0.016	0.016	0.020	0.013	-----	0.014
Q034	0.012	0.011	0.035	0.034	0.012	0.016
Q035	0.061	0.051	0.068	0.062	0.038	0.064
Q036	0.069	0.059	0.071	0.072	0.046	0.076
Q037	0.086	0.078	0.083	0.092	0.064	0.093
Q040	-----	0.032	0.029	0.029	0.027	0.028
Q042	0.058	0.065	0.107	-----	0.071	0.110
Q043	0.016	-----	0.023	0.020	0.010	0.021

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 11, LOG 11.1

GIMBAL PATTERN --- 5A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 3

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	403	404	405	406	407	402
PC (PSIA)	638.0	648.0	642.0	626.0	620.0	643.0
ALT (MU HG A)	27.0	27.0	26.0	25.0	25.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0	1210.0	1210.0	1210.0
TO2 (F)	163.0	155.0	150.0	157.0	165.0	162.0
TH2 (F)	143.0	138.0	135.0	140.0	147.0	145.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q046	1.400	0.718	0.701	0.804	1.120	0.762

CASE ---------- RUN SERIES 11, LOG 11.2

GIMBAL PATTERN --- 5A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 3, AND MAXIMUM ALTITUDE SIMULATED

NORMALIZED TEST DATA

RUN NUMBER	408	409	410	411	412	413
PC (PSIA)	633.0	656.0	642.0	622.0	637.0	613.0
ALT (MU HG A)	7.0	5.0	5.0	6.0	5.0	-----
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0	1210.0	1210.0	1210.0
TO2 (F)	164.0	161.0	165.0	158.0	166.0	-----
TH2 (F)	144.0	164.0	162.0	164.0	168.0	-----
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q001	1.380	2.840	2.420	2.100	2.040	1.930
Q002	2.870	3.870	4.560	4.590	3.430	3.520
Q003	6.214	6.930	7.080	8.990	6.540	6.150
Q004	8.000	7.340	9.260	10.000	8.600	8.250
Q019	2.103	1.760	2.710	2.110	2.900	-----
Q022	0.015	0.010	0.019	0.018	0.011	0.019
Q024	0.094	0.088	0.107	0.108	0.094	0.111
Q025	0.215	0.202	0.221	0.232	0.223	0.237
Q030	0.025	0.014	0.019	0.025	0.015	0.025
Q031	0.055	0.041	0.044	0.048	0.039	0.049
Q032	0.068	0.058	0.055	0.068	0.062	0.068
Q033	0.013	0.014	0.015	0.021	-----	-----
Q034	0.030	0.035	0.038	0.028	0.016	0.030
Q035	0.057	0.041	0.070	0.062	0.039	0.067
Q036	0.075	0.071	0.088	0.069	0.053	0.086
Q037	0.092	0.085	0.106	0.079	0.070	0.103
Q040	0.021	0.025	0.024	0.030	0.019	0.021
Q042	0.103	0.076	0.116	0.089	0.064	0.121
Q043	0.016	0.015	0.019	0.021	0.018	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 11, LOG 11.2

GIMBAL PATTERN --- 5A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 3, AND MAXIMUM ALTITUDE SIMULATED

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	408	409	410	411	412	413
PC (PSIA)	633.0	656.0	642.0	622.0	637.0	613.0
ALT (MU HG A)	7.0	5.0	5.0	6.0	5.0	-----
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0	1210.0	1210.0	1210.0
TO2 (F)	164.0	161.0	165.0	158.0	166.0	-----
TH2 (F)	144.0	164.0	162.0	164.0	168.0	-----
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q046	0.623	0.656	0.759	0.707	0.478	0.855

CASE ---------- RUN SERIES 11, LOG 11.3

GIMBAL PATTERN --- 58 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 1

NORMALIZED TEST DATA

RUN NUMBER	414	415	416
PC (PSIA)	636.0	632.0	640.0
ALT (MU HG A)	23.0	22.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0
TO2 (F)	167.0	163.0	164.0
TH2 (F)	168.0	166.0	166.0
DO2 (IN)	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q001	2.340	2.689	3.120
Q002	4.140	4.206	4.660
Q003	5.230	5.960	5.410
Q004	6.100	8.755	6.050
Q019	4.830	4.434	4.520
Q022	0.019	0.027	0.012
Q024	0.128	-----	0.097
Q025	0.270	-----	0.189
Q030	0.021	0.025	-----
Q031	0.048	0.046	0.024
Q032	0.069	0.061	0.040
Q033	0.022	0.017	-----
Q034	0.033	0.094	0.015
Q035	0.074	0.048	0.030
Q036	-----	0.072	0.041
Q037	-----	0.085	0.052
Q040	0.023	0.027	0.019
Q042	0.138	0.155	0.123
Q043	0.019	0.023	0.019

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 11, LOG 11.3

GIMBAL PATTERN --- 58 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATION OF A 5 DEGREE ACTUATOR FAILURE OUTBOARD ON ENGINE NUMBER 1

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	414	415	416
PC (PSIA)	636.0	632.0	640.0
ALT (MU HG A)	23.0	22.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0
TO2 (F)	167.0	163.0	164.0
TH2 (F)	168.0	166.0	166.0
DO2 (IN)	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q046	0.848	0.811	0.867

CASE ---------- RUN SERIES 12, LOG 12.1

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE 7.5 DEGREES INBOARD (ENGINE NUMBER 4) ON THE CENTER NOZZLE HEATING RATES

NORMALIZED TEST DATA

RUN NUMBER	343	344	345	346	347	348
PC (PSIA)	621.0	614.0	648.0	625.0	661.0	651.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	28.0	28.0
PO2 (PSIA)	1125.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1170.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	156.0	158.0	155.0	164.0	156.0	155.0
TH2 (F)	141.0	143.0	140.0	144.0	141.0	140.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
K002	-----	-----	-----	-----	136.726	149.505
K004	5.139	6.557	5.891	-----	6.091	5.825
K005	1.832	2.542	2.526	-----	2.209	2.621
K006	1.466	1.904	1.639	-----	1.291	1.660
K007	-----	1.379	1.034	0.870	0.784	0.922
K009	0.611	1.256	0.653	0.678	0.641	0.942
L003	3.643	4.941	4.740	4.712	4.398	5.000
L004	1.710	2.264	2.058	2.083	1.931	2.155
L005	1.496	1.513	1.219	1.416	1.176	1.379
L006	1.476	1.318	1.151	1.335	1.281	1.223
L007	1.618	1.575	1.170	1.466	1.415	1.437
L008	1.832	1.379	1.248	1.699	1.511	1.466
M001	-----	10.293	8.466	8.979	7.152	8.718
M006	0.936	1.215	1.044	1.224	1.138	1.311
M007	0.550	0.772	0.624	0.809	0.727	0.796
M008	0.550	0.978	0.839	1.052	1.013	1.107
M009	0.682	0.587	0.702	0.930	0.736	0.757

CASE ---------- RUN SERIES 12, LOG 12.1A

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE 7.5 DEGREES INBOARD (ENGINE NUMBER 4) ON THE HEAT SHIELD AND CENTER ENGINE NOZZLE HEATING RATES

NORMALIZED TEST DATA

RUN NUMBER	440	441	442
PC (PSIA)	685.0	671.0	730.0
ALT (MU HG A)	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0
PH2 (PSIA)	1345.0	1345.0	1345.0
TO2 (F)	167.0	164.0	160.0
TH2 (F)	172.0	180.0	172.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
K001	67.700	64.400	60.600
K003	12.300	12.000	10.900
K004	4.330	4.350	3.880
L001	315.000	328.000	310.000
L002	154.000	146.600	138.000
L003	45.500	46.800	41.200
L004	13.800	13.300	13.200
M003	-----	27.400	24.100
M004	9.240	9.800	8.510
Q002	4.110	3.270	4.120
Q003	10.500	10.300	9.310
Q004	9.890	8.910	9.690
Q008	11.200	10.600	10.200
Q009	12.900	14.900	15.700
Q010	27.600	25.400	25.200
Q011	14.700	12.400	13.400
Q014	8.140	6.820	8.750
Q015	10.100	4.820	10.600
Q016	7.650	-----	5.880

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 12, LOG 12.1A

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE 7.5 DEGREES INBOARD (ENGINE NUMBER 4) ON THE HEAT SHIELD AND CENTER ENGINE NOZZLE HEATING RATES

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	440	441	442
PC (PSIA)	685.0	671.0	730.0
ALT (MU HG A)	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0
PH2 (PSIA)	1345.0	1345.0	1345.0
TO2 (F)	167.0	164.0	160.0
TH2 (F)	172.0	180.0	172.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q017	2.520	2.810	-----
Q019	3.260	2.360	-----

CASE ---------- RUN SERIES 12, LOG 12.2

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SAME AS SERIES 12.1 EXCEPT THE INSTRUMENTATION IS SWITCHED TO THE HEAT SHIELD AND THRUST CONE

NORMALIZED TEST DATA

RUN NUMBER	349	350	351	352	353	354
PC (PSIA)	642.0	634.0	648.0	637.0	646.0	625.0
ALT (MU HG A)	27.0	27.0	25.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	160.0	172.0	162.0	166.0	162.0	166.0
TH2 (F)	140.0	152.0	142.0	147.0	142.0	146.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q001	1.969	1.964	1.697	2.034	2.328	2.225
Q002	3.377	3.110	3.297	3.473	3.659	3.741
Q003	5.414	5.443	7.871	6.518	6.790	6.927
Q004	7.738	8.045	8.602	7.898	8.208	7.038
Q008	-----	9.400	10.533	10.418	10.566	8.393
Q009	-----	13.059	11.704	11.013	12.131	11.629
Q010	16.637	21.033	19.701	18.950	21.621	20.426
Q011	6.950	6.380	5.276	7.322	6.653	8.019
Q013	1.910	2.183	2.175	2.718	2.534	2.872
Q014	5.473	5.941	5.364	5.953	5.997	7.827
Q015	5.542	5.523	7.607	5.278	6.369	6.714
Q016	6.605	5.513	5.491	6.389	6.115	6.310
Q017	2.343	2.632	2.224	2.689	2.720	2.184
Q019	2.067	2.672	3.131	2.897	2.818	2.528
Q022	0.017	0.012	0.005	0.010	0.010	0.011
Q023	0.040	0.051	0.037	0.042	0.042	0.042
Q024	0.071	0.060	0.059	0.064	0.058	0.055
Q025	0.126	0.113	0.105	0.103	0.110	0.103
Q031	0.017	0.018	0.017	0.025	0.024	0.022

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 12, LOG 12.2

GIMBAL PATTERN --- 4AA MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SAME AS SERIES 12.1 EXCEPT THE INSTRUMENTATION IS SWITCHED TO THE HEAT SHIELD AND THRUST CONE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	349	350	351	352	353	354
PC (PSIA)	642.0	634.0	648.0	637.0	646.0	625.0
ALT (MU HG A)	27.0	27.0	25.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	160.0	172.0	162.0	166.0	162.0	166.0
TH2 (F)	140.0	152.0	142.0	147.0	142.0	146.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID					TRANSDUCER OUTPUT BTU/SQ-FT-SEC	
Q052	1.359	0.977	1.697	1.607	1.487	1.871

CASE ---------- RUN SERIES 12, LOG 12.3

GIMBAL PATTERN --- 4AB MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: SIMULATED DUAL ACTUATOR FAILURE INBOARD ON ENGINE NUMBER 1

NORMALIZED TEST DATA

RUN NUMBER	355	356	357
PC (PSIA)	637.0	637.0	652.0
ALT (MU HG A)	25.0	26.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0
TO2 (F)	157.0	160.0	167.0
TH2 (F)	143.0	143.0	147.0
DO2 (IN)	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
M001	-----	5.497	5.428
M006	0.794	0.833	0.911
M008	0.794	0.804	0.863
Q001	3.215	2.877	3.160
Q002	3.403	3.334	3.354
Q003	7.580	5.854	6.349
Q004	6.221	4.891	5.448
Q007	0.446	0.407	0.465
Q008	4.812	4.108	3.587
Q009	4.485	5.377	5.651
Q010	-----	0.695	1.696
Q011	-----	0.784	-----
Q013	2.004	1.607	1.648
Q014	1.726	1.925	1.745
Q015	0.943	1.597	1.221
Q016	1.429	1.945	1.599
Q017	2.530	2.838	3.344
Q019	2.113	3.036	2.627
Q022	0.006	0.012	0.010

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 12, LOG 12.3

GIMBAL PATTERN --- 4AB
NOMINAL PC ------- 632.0 PSIA
MIXTURE RATIO ---- 5.00
INTERSTAGE ------- OFF

REMARKS: SIMULATED DUAL ACTUATOR FAILURE INBOARD ON ENGINE NUMBER 1

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	355	356	357
PC (PSIA)	637.0	637.0	652.0
ALT (MU HG A)	25.0	26.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0
TO2 (F)	157.0	160.0	167.0
TH2 (F)	143.0	143.0	147.0
DO2 (IN)	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q023	0.034	0.037	0.038
Q024	0.061	0.066	0.050
Q025	0.105	0.109	0.110
Q031	0.030	0.026	0.022
Q052	4.385	3.284	4.071

CASE ---------- RUN SERIES 13, LOG 13.1.1

GIMBAL PATTERN --- 7 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE AT 5 DEGREES ON NO 4 ENGINE ON CENTER ENGINE NOZZLE ENVIRONMENT

NORMALIZED TEST DATA

RUN NUMBER	430	431	432	433	434
PC (PSIA)	622.0	610.0	599.0	607.0	611.0
ALT (MU HG A)	25.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0	1210.0	1210.0
TO2 (F)	166.0	165.0	166.0	160.0	-----
TH2 (F)	162.0	165.0	171.0	166.0	-----
DO2 (IN)	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335
TRANSDUCER				TRANSDUCER OUTPUT	
ID				BTU/SQ-FT-SEC	
K001	43.800	39.200	38.800	49.600	25.800
K002	3.870	2.110	-----	-----	-----
K003	6.960	6.140	6.020	-----	5.360
K004	2.590	2.420	2.380	-----	2.700
L001	8.580	9.120	10.140	-----	12.600
L002	7.330	9.050	9.660	-----	11.700
L003	5.080	5.100	5.280	7.040	4.880
L004	4.060	3.750	3.940	3.980	-----
M001	5.680	6.530	6.090	-----	-----
M003	3.650	3.420	3.820	-----	3.730
M004	2.540	2.770	2.950	-----	2.580
Q002	-----	3.220	-----	3.260	2.640
Q003	-----	4.650	-----	4.770	4.370
Q004	-----	4.460	5.370	4.920	4.590
Q008	-----	11.100	-----	10.300	7.280
Q009	-----	7.900	8.860	9.530	8.610
Q010	6.500	6.850	6.970	7.520	-----
Q011	6.720	7.080	7.160	6.700	-----
Q014	16.600	14.400	19.700	18.800	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 13, LOG 13.1.1

GIMBAL PATTERN --- 7 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE AT 5 DEGREES ON NO 4 ENGINE ON CENTER ENGINE NOZZLE ENVIRONMENT

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	430	431	432	433	434
PC (PSIA)	622.0	610.0	599.0	607.0	611.0
ALT (MU HG A)	25.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1215.0	1215.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0	1210.0	1210.0	1210.0
TO2 (F)	166.0	165.0	166.0	160.0	-----
TH2 (F)	162.0	165.0	171.0	166.0	-----
DO2 (IN)	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC				
Q015	-----	-----	16.100	17.500	16.400
Q016	7.110	6.710	7.530	6.710	-----
Q019	-----	6.140	5.780	-----	6.820

CASE ---------- RUN SERIES 13, LOG 13.1.1A

GIMBAL PATTERN --- 7 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE AT 5 DEGREES ON NO 4 ENGINE ON CENTER ENGINE NOZZLE ENVIRONMENT

NORMALIZED TEST DATA

RUN NUMBER	435	436	437	438
PC (PSIA)	669.0	696.0	717.0	690.0
ALT (MU HG A)	27.0	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0	1335.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0
TO2 (F)	168.0	159.0	160.0	167.0
TH2 (F)	174.0	167.0	174.0	172.0
DO2 (IN)	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335

TRANSDUCER OUTPUT

TRANSDUCER ID				BTU/SQ-FT-SEC
K001	24.500	17.800	14.100	12.300
K003	6.700	5.190	5.310	6.360
K004	3.440	3.100	3.130	3.330
L001	45.000	32.500	35.300	49.800
L002	24.800	18.600	21.400	20.700
L003	8.550	6.950	7.650	7.680
L004	4.540	3.300	3.960	3.820
M003	6.090	5.040	6.070	6.600
M004	2.670	2.620	2.990	2.920
Q002	2.970	3.240	3.490	-----
Q003	4.680	4.700	4.940	4.790
Q004	5.450	-----	5.630	5.820
Q008	9.320	9.700	11.000	11.100
Q009	11.500	11.000	11.600	11.400
Q010	-----	7.760	9.290	8.970
Q011	7.140	7.520	8.260	8.690
Q014	-----	20.900	24.000	21.800
Q015	21.300	20.800	21.800	20.000
Q016	7.660	7.030	7.240	7.900

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 13, LOG 13.1.1A

GIMBAL PATTERN --- 7 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF DUAL ACTUATOR FAILURE AT 5 DEGREES ON NO 4 ENGINE ON CENTER ENGINE NOZZLE ENVIRONMENT

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	435	436	437	438
PC (PSIA)	669.0	696.0	717.0	690.0
ALT (MU HG A)	27.0	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0	1335.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0
TO2 (F)	168.0	159.0	160.0	167.0
TH2 (F)	174.0	167.0	174.0	172.0
DO2 (IN)	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC			
Q019	6.610	7.780	6.300	7.140

CASE ---------- RUN SERIES 14, LOG 14.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 630.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE ENGINE COMPONENT ENVIRONMENT

NORMALIZED TEST DATA

RUN NUMBER	362	363	364	365	366	367	368	369	370
PC (PSIA)	630.0	614.0	606.0	659.0	631.0	644.0	638.0	617.0	644.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	25.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	163.0	161.0	155.0	164.0	163.0	165.0	162.0	165.0	158.0
TH2 (F)	143.0	141.0	141.0	143.0	143.0	145.0	142.0	136.0	143.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

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TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC								
Q001	0.710	0.823	1.096	1.030	-----	1.220	-----	1.440	1.120
Q002	1.110	1.600	1.580	1.840	-----	2.270	-----	2.660	2.390
Q003	2.620	2.190	2.080	2.910	4.860	4.720	3.580	4.100	3.980
Q004	5.050	5.240	4.480	5.160	3.860	5.590	5.600	5.990	5.420
Q008	1.610	1.960	2.460	2.290	-----	-----	-----	-----	-----
Q022	-----	0.011	0.012	0.013	-----	0.010	-----	0.011	-----
Q023	0.031	0.061	0.058	0.052	-----	0.044	-----	0.066	0.036
Q024	0.072	0.050	0.084	-----	0.096	0.084	0.088	0.089	0.069
Q025	-----	-----	-----	0.192	0.163	0.158	0.170	0.176	0.133
Q033	0.013	-----	-----	-----	-----	-----	-----	-----	-----
Q046	0.350	0.481	0.590	0.548	0.607	0.595	-----	-----	0.342
Q052	1.790	1.730	1.390	-----	-----	-----	-----	-----	-----
Q070	0.156	0.223	0.256	-----	-----	-----	-----	-----	-----
Q071	-----	-----	-----	0.048	0.064	0.066	-----	-----	-----
Q072	-----	-----	-----	-----	-----	-----	0.034	0.042	0.022
Q080	-----	0.148	0.178	-----	-----	-----	-----	-----	-----
Q081	-----	-----	-----	0.170	0.174	0.184	-----	-----	-----
Q082	-----	-----	-----	-----	-----	-----	0.130	0.146	0.091
Q090	0.060	0.039	-----	-----	-----	-----	-----	-----	-----

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(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 14, LOG 14.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 630.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE ENGINE COMPONENT ENVIRONMENT

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	362	363	364	365	366	367	368	369	370
PC (PSIA)	630.0	614.0	606.0	659.0	631.0	644.0	638.0	617.0	644.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	25.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	163.0	161.0	155.0	164.0	163.0	165.0	162.0	165.0	158.0
TH2 (F)	143.0	141.0	141.0	143.0	143.0	145.0	142.0	136.0	143.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC								
Q091	-----	-----	-----	0.082	0.086	0.090	-----	-----	-----
Q092	-----	-----	-----	-----	-----	-----	0.072	0.067	0.062
Q100	0.061	0.074	0.088	-----	-----	-----	-----	-----	-----
Q101	-----	-----	-----	0.069	0.069	0.093	-----	-----	-----
Q102	-----	-----	-----	-----	-----	-----	0.043	0.056	0.031

CASE ---------- RUN SERIES 14, LOG 14.1.1A

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE ENGINE COMPONENT ENVIRONMENT. ENGINE RING GAGES ON NO 3 ENGINE TO COMPARE WITH THOSE ON NO 1 ENGINE

NORMALIZED TEST DATA

RUN NUMBER	443	444
PC (PSIA)	603.0	605.0
ALT (MU HG A)	27.0	27.0
PO2 (PSIA)	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0
TO2 (F)	163.0	168.0
TH2 (F)	169.0	160.0
DO2 (IN)	0.388	0.388
DH2 (IN)	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ/FT-SEC	
Q001	3.220	2.800
Q002	6.300	3.530
Q003	-----	5.370
Q004	4.460	2.320
Q015	3.200	3.540
Q022	0.008	0.004
Q023	0.063	0.049
Q024T	0.075	0.076
Q024R	0.017	0.023
Q025	0.194	0.152
Q038	0.008	0.004
Q040	0.038	0.029
Q041	0.010	0.008
Q052	2.640	1.430
Q053	0.455	0.491
Q054	0.554	0.604
Q055	0.510	0.363
Q070	0.107	0.097
Q080	0.137	0.137

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 14, LOG 14.1.1A

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE ENGINE COMPONENT ENVIRONMENT. ENGINE RING GAGES ON NO 3 ENGINE TO COMPARE WITH THOSE ON NO 1 ENGINE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	443	444
PC (PSIA)	603.0	605.0
ALT (MU HG A)	27.0	27.0
PO2 (PSIA)	1215.0	1215.0
PH2 (PSIA)	1210.0	1210.0
TO2 (F)	163.0	168.0
TH2 (F)	169.0	160.0
DO2 (IN)	0.388	0.388
DH2 (IN)	0.335	0.335

TRANSDUCER ID			TRANSDUCER OUTPUT BTU/SQ/FT-SEC
Q090	0.044	0.049	

CASE ---------- RUN SERIES 14, LOG 14.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- ON

REMARKS: TO DETERMINE J-2 ENGINE COMPONENT ENVIRONMENT

NORMALIZED TEST DATA

RUN NUMBER	371	372	373	374	375	376	377	378	379
PC (PSIA)	594.0	621.0	604.0	604.0	611.0	622.0	633.0	604.0	599.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	165.0	165.0	169.0	165.0	161.0	164.0	146.0	155.0	166.0
TH2 (F)	143.0	145.0	146.0	145.0	144.0	144.0	125.0	138.0	146.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC								
Q001	0.900	1.420	1.700	1.150	1.310	0.802	1.030	0.820	0.981
Q002	1.131	2.660	1.770	2.420	2.470	2.130	2.170	1.910	2.120
Q003	2.340	4.450	2.790	4.380	4.100	3.300	3.670	3.090	4.130
Q004	5.320	6.090	5.340	5.390	5.960	6.210	5.800	4.940	6.120
Q008	-----	-----	2.060	2.410	2.980	2.430	2.190	1.800	2.780
Q020	0.014	0.047	0.029	0.023	0.021	0.017	-----	0.063	-----
Q022	0.623	-----	0.401	0.464	0.308	0.280	0.326	-----	0.760
Q023	1.540	-----	1.750	1.420	1.710	1.800	1.720	-----	1.590
Q024	-----	0.861	-----	0.698	0.625	0.678	-----	0.056	0.330
Q025	-----	0.368	-----	0.234	0.286	0.285	-----	0.203	0.165
Q046	0.808	0.919	0.892	0.834	0.939	0.722	0.879	0.751	0.966
Q052	-----	-----	1.920	2.490	2.050	2.200	2.230	1.880	1.940
Q070	-----	-----	-----	-----	-----	-----	0.255	0.043	0.202
Q071	-----	-----	-----	0.174	0.146	0.159	-----	-----	-----
Q072	0.355	0.114	0.126	-----	-----	-----	-----	-----	-----
Q080	-----	-----	-----	-----	-----	-----	0.170	0.144	0.184
Q081	-----	-----	-----	0.233	0.235	-----	-----	-----	-----
Q082	0.982	0.653	0.850	-----	-----	-----	-----	-----	-----
Q090	-----	-----	-----	-----	-----	-----	0.479	0.633	0.367

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 14, LOG 14.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- ON

REMARKS: TO DETERMINE J-2 ENGINE COMPONENT ENVIRONMENT

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	371	372	373	374	375	376	377	378	379
PC (PSIA)	594.0	621.0	604.0	604.0	611.0	622.0	633.0	604.0	599.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0
TO2 (F)	165.0	165.0	169.0	165.0	161.0	164.0	146.0	155.0	166.0
TH2 (F)	143.0	145.0	146.0	145.0	144.0	144.0	125.0	138.0	146.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC								
Q091	1.010	0.797	1.300	-----	-----	-----	-----	-----	-----
Q092	0.918	0.922	1.100	-----	-----	-----	-----	-----	-----
Q101	-----	-----	-----	0.184	0.134	0.355	-----	-----	-----
Q102	0.432	0.213	0.190	-----	-----	-----	-----	-----	-----

CASE ---------- RUN SERIES 14, LOG 14.3

GIMBAL PATTERN --- 3B MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: J-2 ENGINE COMPONENT ENVIRONMENT WITH 7.5 DEGREE SINGLE ACTUATOR FAIL. ON ENGINE NO 1. Q70-72,Q80-82,Q90-92,Q100-102 DOUBTFUL BECAUSE OF FLOW INTERFERENCE

NORMALIZED TEST DATA

RUN NUMBER	380	381	382	391	392	393	394	395	396	397	398
PC (PSIA)	608.0	594.0	604.0	607.0	607.0	607.0	607.0	607.0	607.0	611.0	599.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1170.0	1170.0	1170.0	1140.0	1190.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1215.0	1215.0	1215.0	1185.0	1235.0
TO2 (F)	165.0	164.0	175.0	164.0	158.0	157.0	158.0	155.0	164.0	165.0	158.0
TH2 (F)	145.0	143.0	155.0	144.0	142.0	139.0	142.0	138.0	144.0	139.0	143.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC										
Q001	1.660	1.590	1.860	2.060	1.990	2.230	1.850	1.350	2.240	1.830	1.500
Q002	2.160	2.270	2.420	2.840	3.240	3.210	3.160	1.910	2.730	4.110	2.230
Q003	2.740	3.140	2.420	3.500	2.700	2.680	2.650	3.160	2.780	3.140	3.440
Q004	3.130	3.060	3.060	3.720	2.840	2.680	2.750	2.600	2.840	2.800	-----
Q008	4.240	4.620	4.880	6.050	4.840	5.400	4.820	4.480	4.770	4.250	5.080
Q020	-----	0.007	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q022	-----	-----	0.008	0.011	0.011	-----	-----	0.023	0.020	-----	-----
Q024	0.135	0.125	-----	0.119	0.131	0.109	0.086	0.125	0.127	0.141	0.118
Q025	0.308	0.274	-----	0.228	0.250	0.236	0.188	0.264	0.258	0.258	0.236
Q041	-----	0.028	0.029	0.026	0.029	-----	-----	-----	0.029	-----	-----
Q046	0.875	0.532	0.504	0.776	0.754	0.545	0.624	0.885	0.733	0.694	0.868
Q052	1.570	1.310	2.420	-----	-----	-----	-----	1.884	2.140	2.790	-----
Q053	-----	-----	-----	0.154	0.108	0.110	0.176	0.154	0.125	0.174	0.211
Q070	-----	-----	-----	-----	-----	-----	-----	-----	0.642	0.541	0.197
Q071	-----	-----	-----	0.165	0.172	0.128	0.135	-----	-----	-----	-----
Q072	0.090	0.095	0.120	-----	-----	-----	-----	-----	-----	-----	-----
Q080	-----	-----	-----	-----	-----	-----	-----	0.282	0.348	0.278	0.142
Q081	-----	-----	-----	0.399	0.424	0.409	0.394	-----	-----	-----	-----
Q082	0.278	0.267	0.317	-----	-----	-----	-----	-----	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 14, LOG 14.3

GIMBAL PATTERN --- 3B MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: J-2 ENGINE COMPONENT ENVIRONMENT WITH 7.5 DEGREE SINGLE ACTUATOR FAIL. ON ENGINE NO 1. Q70-72,Q80-82,Q90-92,Q100-102 DOUBTFUL BECAUSE OF FLOW INTERFERENCE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	380	381	382	391	392	393	394	395	396	397	398
PC (PSIA)	608.0	594.0	604.0	607.0	607.0	607.0	607.0	607.0	607.0	611.0	599.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1170.0	1170.0	1170.0	1140.0	1190.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1215.0	1215.0	1215.0	1185.0	1235.0
TO2 (F)	165.0	164.0	175.0	164.0	158.0	157.0	158.0	155.0	164.0	165.0	158.0
TH2 (F)	145.0	143.0	155.0	144.0	142.0	139.0	142.0	138.0	144.0	139.0	143.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC										
Q090	-----	-----	-----	-----	-----	-----	-----	0.036	0.034	0.026	0.026
Q091	-----	-----	-----	0.091	0.078	0.083	0.078	-----	-----	-----	-----
Q092	0.108	0.098	0.102	-----	-----	-----	-----	-----	-----	-----	-----
Q101	-----	-----	-----	-----	0.159	0.159	0.148	0.147	-----	-----	-----
Q102	0.100	0.088	0.111	-----	-----	-----	-----	-----	-----	-----	-----

CASE ---------- RUN SERIES 14, LOG 14.4

GIMBAL PATTERN --- 3B MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- ON

REMARKS: ENGINE COMPONENT ENVIRONMENT WITH SINGLE ACTUATOR FAILURE ON NUMBER ONE ENGINE AT 7.5 DEGREES OUTBOARD

NORMALIZED TEST DATA

RUN NUMBER	383	384	385	386	387	388	389	390	399	400	401
PC (PSIA)	606.0	610.0	594.0	610.0	606.0	599.0	601.0	606.0	611.0	610.0	604.0
ALT (MU HG A)	27.0	25.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	24.0
PO2 (PSIA)	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1140.0	1215.0	1215.0	1215.0
PH2 (PSIA)	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1185.0	1260.0	1260.0	1260.0
TO2 (F)	165.0	158.0	162.0	157.0	165.0	163.0	164.0	158.0	162.0	163.0	-----
TH2 (F)	185.0	140.0	142.0	138.0	145.0	143.0	144.0	140.0	142.0	143.0	-----
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC										
Q001	1.970	1.700	1.340	1.740	1.410	1.700	1.860	2.000	1.760	1.670	1.270
Q002	2.730	2.390	2.090	2.770	2.340	2.470	2.310	2.650	2.900	2.460	2.440
Q003	3.240	2.720	2.440	3.020	2.660	3.170	2.560	2.760	2.510	-----	3.460
Q004	3.850	2.980	2.810	3.170	3.600	3.290	2.660	2.590	3.230	-----	3.500
Q008	5.130	4.780	5.530	6.160	6.250	5.280	4.170	-----	4.600	4.540	4.820
Q020	-----	-----	-----	-----	0.032	-----	0.058	-----	-----	0.056	0.054
Q022	0.702	0.759	-----	-----	0.551	0.933	0.756	-----	0.464	-----	0.520
Q024	0.834	0.923	0.771	0.542	-----	0.571	0.721	0.536	1.310	0.581	1.050
Q025	0.501	0.391	0.407	0.226	0.316	0.268	0.321	0.213	0.288	0.212	0.267
Q041	0.099	0.136	-----	0.138	0.125	0.110	0.117	-----	0.089	0.120	-----
Q046	1.360	1.510	1.080	1.160	-----	1.190	1.140	1.200	1.510	1.320	1.400
Q052	2.200	2.660	2.170	-----	-----	-----	-----	-----	-----	-----	-----
Q053	-----	-----	-----	0.203	-----	0.640	0.558	0.718	-----	0.568	0.720

CASE ---------- RUN SERIES 15, LOG 15.3.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA. INTERSTAGE ------- ON

REMARKS: DETERMINATION OF THRUST STRUCTURE HEATING RATES
INTERSTAGE GAGES AT 0 DEGREES . ALSO SEE LOG 15.3.2

NORMALIZED TEST DATA

RUN NUMBER	417	418	419
PC (PSIA)	727.0	715.0	671.0
ALT (MU HG A)	24.0	27.0	27.0
PO2 (PSIA)	1285.0	1335.0	1335.0
PH2 (PSIA)	1235.0	1295.0	1295.0
TO2 (F)	152.0	148.0	161.0
TH2 (F)	164.0	165.0	164.0
DO2 (IN)	0.398	0.388	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC (P) IN PSIA		
P015	0.029	0.029	0.032
P017	0.024	0.024	0.024
Q004	5.360	5.833	4.940
Q020	0.058	-----	0.050
Q021	0.324	0.271	0.162
Q022	0.294	0.093	0.100
Q023	-----	2.336	1.860
Q024	0.675	1.366	1.352
Q025	0.289	0.570	0.515
Q026	0.210	-----	0.360
Q027	4.780	-----	4.260
Q028	8.160	7.028	8.430
Q029	-----	0.093	-----
Q030	-----	0.093	0.179
Q031	0.705	0.676	0.685
Q032	0.193	0.478	0.420
Q036	1.910	1.592	1.450
Q037	0.349	0.192	0.268
Q040	0.330	0.761	0.787

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 15, LOG 15.3.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: DETERMINATION OF THRUST STRUCTURE HEATING RATES
INTERSTAGE GAGES AT 0 DEGREES . ALSO SEE LOG 15.3.2

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	417	418	419
PC (PSIA)	727.0	715.0	671.0
ALT (MU HG A)	24.0	27.0	27.0
PO2 (PSIA)	1285.0	1335.0	1335.0
PH2 (PSIA)	1235.0	1295.0	1295.0
TO2 (F)	152.0	148.0	161.0
TH2 (F)	164.0	165.0	164.0
DO2 (IN)	0.398	0.388	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC (P) IN PSIA		
Q043	0.219	0.121	0.133
Q044	0.162	0.365	0.302
Q046	1.070	1.100	1.097

CASE ---------- RUN SERIES 15, LOG 15.3.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: DETERMINATION OF THRUST STRUCTURE HEATING RATES
INTERSTAGE GAGES AT 45 DEGREES. ALSO SEE RUN SERIES 15.3.1 .

NORMALIZED TEST DATA

RUN NUMBER	420	421	422	423
PC (PSIA)	678.0	699.0	733.0	694.0
ALT (MU HG A)	27.0	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0	1335.0
PH2 (PSIA)	1295.0	1295.0	1295.0	1295.0
TO2 (F)	164.0	142.0	173.0	164.0
TH2 (F)	166.0	165.0	168.0	164.0
DO2 (IN)	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC (P) IN PSIA			
P015	0.027	0.029	-----	-----
P017	0.024	0.024	-----	-----
Q002	-----	5.360	4.510	-----
Q003	-----	6.690	5.360	-----
Q004	6.490	7.160	6.470	6.440
Q020	0.049	0.072	0.111	0.111
Q021	0.286	0.324	0.415	0.327
Q022	0.084	0.081	-----	0.085
Q023	2.160	1.022	1.330	2.510
Q024	1.336	1.480	-----	0.715
Q025	0.594	0.644	-----	0.325
Q026	0.156	0.125	0.095	0.078
Q027	0.625	0.600	0.655	0.569
Q028	0.804	0.851	0.656	0.944
Q029	0.226	0.168	0.168	0.180
Q030	-----	0.134	0.185	0.556
Q031	0.860	0.500	0.457	0.830
Q032	0.595	0.464	0.478	0.145
Q036	1.005	1.640	2.230	1.980

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 15, LOG 15.3.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: DETERMINATION OF THRUST STRUCTURE HEATING RATES
INTERSTAGE GAGES AT 45 DEGREES. ALSO SEE RUN SERIES 15.3.1

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	420	421	422	423
PC (PSIA)	678.0	699.0	733.0	694.0
ALT (MU HG A)	27.0	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0	1335.0
PH2 (PSIA)	1295.0	1295.0	1295.0	1295.0
TO2 (F)	164.0	142.0	173.0	164.0
TH2 (F)	166.0	165.0	168.0	164.0
DO2 (IN)	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC (P) IN PSIA			
Q037	0.144	0.292	0.402	0.501
Q040	0.576	0.507	0.371	0.476
Q043	0.098	0.125	0.117	0.144
Q044	0.256	0.189	0.195	0.051
Q046	0.910	-----	-----	-----
Q054	-----	0.921	0.969	0.841

CASE ---------- RUN SERIES 16 , LOG 16.1

GIMBAL PATTERN --- 38 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECTS OF SINGLE ACTUATOR FAILURE OUTBOARD ON THRUST STRUCTURE WITH INTERSTAGE. INTERSTAGE GAGES 26-29 AT 0 DEGREES AZIMUTH

NORMALIZED TEST DATA

RUN NUMBER	424	425	426
PC (PSIA)	681.0	697.0	703.0
ALT (MU HG A)	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0
PH2 (PSIA)	1295.0	1320.0	1320.0
TO2 (F)	162.0	167.0	-----
TH2 (F)	171.0	176.0	-----
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER OUTPUT
BTU/SQ-FT-SEC

TRANSDUCER ID			
Q004	4.420	4.480	5.310
Q020	0.035	0.037	0.022
Q021	0.322	0.342	0.324
Q022	0.171	0.214	0.185
Q023	1.920	-----	1.960
Q024	1.100	0.918	1.040
Q025	0.609	0.430	0.396
Q026	0.369	0.289	0.259
Q027	3.800	3.810	3.140
Q028	4.200	6.150	6.100
Q029	0.424	-----	-----
Q030	0.124	0.121	0.115
Q031	0.594	0.700	0.795
Q032	0.510	-----	0.562
Q036	0.197	0.172	0.109
Q037	0.145	0.158	0.254
Q038	-----	0.551	0.452
Q040	1.195	1.120	1.150
Q043	0.087	0.071	0.038

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 16 , LOG 16.1

GIMBAL PATTERN --- 3B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECTS OF SINGLE ACTUATOR FAILURE OUTBOARD ON THRUST STRUCTURE WITH INTERSTAGE. INTERSTAGE GAGES 26-29 AT 0 DEGREES AZIMUTH

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	424	425	426
PC (PSIA)	681.0	697.0	703.0
ALT (MU HG A)	27.0	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0
PH2 (PSIA)	1295.0	1320.0	1320.0
TO2 (F)	162.0	167.0	-----
TH2 (F)	171.0	176.0	-----
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q044	0.298	0.330	0.406
Q046	1.120	-----	1.090
Q054	-----	0.528	0.658

CASE ---------- RUN SERIES 16, LOG 16.3.1

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE INBOARD ON THRUST STRUCTURE HEATING RATES WITH INTERSTAGE ON. INTERSTAGE GAGES Q26,27,28 AT 0 DEGREES AZIMUTH

NORMALIZED TEST DATA

RUN NUMBER	427	428	429
PC (PSIA)	706.0	717.0	681.0
ALT (MU HG A)	-----	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0
PH2 (PSIA)	1320.0	1320.0	1320.0
TO2 (F)	-----	161.0	161.0
TH2 (F)	-----	172.0	170.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335
TRANSDUCER ID			TRANSDUCER OUTPUT BTU/SQ-FT-SEC
Q004	7.550	7.250	8.820
Q020	0.203	0.097	0.080
Q021	0.422	0.268	0.379
Q022	-----	0.066	0.356
Q023	2.440	1.610	2.300
Q024	0.650	0.935	0.442
Q024R	-----	0.018	0.016
Q025	0.306	0.457	0.346
Q026	0.213	0.188	0.190
Q027	2.880	3.650	3.780
Q028	6.420	7.680	6.800
Q029	0.292	0.155	0.475
Q030	0.394	0.525	0.662
Q031	0.884	0.841	0.754
Q032	0.515	0.419	0.132
Q036	0.846	0.916	1.070
Q037	0.258	0.195	0.225
Q038	0.459	0.466	0.360
Q040	-----	0.780	1.110

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 16, LOG 16.3.1

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE INBOARD ON THRUST STRUCTURE HEATING RATES WITH INTERSTAGE ON. INTERSTAGE GAGES Q26,27,28 AT 0 DEGREES AZIMUTH

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	427	428	429
PC (PSIA)	706.0	717.0	681.0
ALT (MU HG A)	-----	27.0	27.0
PO2 (PSIA)	1335.0	1335.0	1335.0
PH2 (PSIA)	1320.0	1320.0	1320.0
TO2 (F)	-----	161.0	161.0
TH2 (F)	-----	172.0	170.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q041	0.112	0.130	0.209
Q044	0.304	0.350	0.295
Q054	1.296	1.180	1.165

CASE ---------- RUN SERIES 18, LOG 18.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE DEFLECTIONS WITH 1.13 DEGREE PITCH OR YAW

NORMALIZED TEST DATA

RUN NUMBER	479	480	481	482	483	484	485
PC (PSIA)	638.0	621.0	655.0	632.0	638.0	633.0	623.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	169.0	168.0	170.0	170.0	157.0	167.0	168.0
TH2 (F)	152.0	150.0	150.0	153.0	155.0	151.0	152.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
Q001	3.270	-----	3.200	2.490	-----	3.380	-----
Q002	4.910	4.740	3.570	4.660	4.720	4.460	5.730
Q003	6.810	7.540	6.490	6.580	6.870	7.150	7.850
Q004	-----	6.650	5.750	5.820	6.300	6.670	6.790
Q006	-----	-----	-----	-----	-----	4.060	-----
Q008	6.320	5.830	4.550	5.190	6.270	6.900	7.070
Q009	5.190	5.020	5.220	4.910	5.600	5.730	6.220
Q010	3.320	3.020	-----	3.060	2.990	3.000	3.150
Q011	2.800	2.750	2.710	2.960	2.440	3.280	2.670
Q013	2.690	2.690	2.900	2.570	2.640	2.320	2.150
Q014	2.520	1.900	-----	1.890	1.770	1.840	1.580
Q015	3.140	2.040	2.680	2.310	2.480	2.770	3.130
Q016	2.080	1.810	2.040	1.970	1.800	2.250	1.940
Q017	-----	1.650	1.090	1.020	1.250	1.070	1.150
Q019	-----	2.590	2.840	2.150	3.030	2.680	2.980
Q023	0.038	0.065	0.041	0.051	0.064	0.056	0.061
Q024	0.058	0.077	0.058	0.074	0.083	0.072	0.077
Q025	0.127	0.173	0.124	0.156	0.185	0.173	0.172
Q031	0.037	0.047	0.038	0.042	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 18, LOG 18.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE DEFLECTIONS WITH 1.13 DEGREE PITCH OR YAW

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	479	480	481	482	483	484	485
PC (PSIA)	638.0	621.0	655.0	632.0	638.0	633.0	623.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	169.0	168.0	170.0	170.0	157.0	167.0	168.0
TH2 (F)	152.0	150.0	150.0	153.0	155.0	151.0	152.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
Q04R	-----	-----	-----	-----	0.044	0.035	0.050
Q044	0.102	0.133	0.092	0.116	0.120	-----	0.114
Q046	0.320	0.280	0.372	0.341	0.382	-----	0.526
Q052	2.360	2.400	2.230	2.960	-----	-----	-----
Q054	-----	0.532	0.759	0.807	0.873	0.748	0.885

CASE ---------- RUN SERIES 19, LOG 19.1

GIMBAL PATTERN --- 9 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREE PITCH OR YAW DEFLECTION

NORMALIZED TEST DATA

RUN NUMBER	486	487	488	489	490	491
PC (PSIA)	640.0	618.0	629.0	640.0	646.0	632.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	166.0	168.0	165.0	166.0	168.0	160.0
TH2 (F)	153.0	156.0	148.0	153.0	154.0	152.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q001	3.400	3.420	2.560	3.440	3.830	3.430
Q002	5.890	6.360	5.070	5.840	7.240	6.320
Q003	7.680	7.810	8.110	-----	8.340	8.000
Q004	7.450	6.760	7.250	7.350	-----	6.750
Q004R	0.047	0.044	0.042	0.036	0.040	0.045
Q006	7.460	6.820	7.010	7.020	7.780	6.130
Q008	8.200	7.680	7.960	8.180	-----	7.150
Q009	6.360	6.400	6.110	5.980	5.460	5.910
Q010	3.410	3.700	4.450	3.400	3.420	2.980
Q011	2.400	2.710	2.450	3.110	2.520	2.250
Q013	3.590	3.050	3.030	2.980	2.830	2.910
Q014	1.760	1.940	1.850	-----	1.580	1.410
Q015	4.640	4.150	-----	-----	3.640	3.480
Q016	2.340	2.540	2.670	2.380	2.150	2.230
Q017	2.070	1.790	1.910	2.250	2.220	2.180
Q019	2.770	2.840	2.410	2.440	2.210	2.050
Q023	0.062	0.064	0.057	0.064	0.074	0.055
Q024	0.085	0.076	0.083	0.085	0.094	0.075
Q025	0.187	0.169	0.169	0.189	0.203	0.162

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 19, LOG 19.1

GIMBAL PATTERN --- 9 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREE PITCH OR YAW DEFLECTION

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	486	487	488	489	490	491
PC (PSIA)	640.0	618.0	629.0	640.0	646.0	632.0
ALT (MU HG A)	27.0	27.0	27.0	27.0	27.0	27.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	166.0	168.0	165.0	166.0	168.0	160.0
TH2 (F)	153.0	156.0	148.0	153.0	154.0	152.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID					TRANSDUCER OUTPUT BTU/SQ-FT-SEC	
Q044	0.100	-----	0.081	0.096	0.102	0.100
Q046	0.390	-----	0.497	0.360	0.367	0.243
Q054	0.766	0.803	0.460	0.840	-----	-----
Q110	-----	-----	-----	-----	0.276	0.282

CASE ---------- RUN SERIES 19, LOG 19.2

GIMBAL PATTERN --- 9A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW

NORMALIZED TEST DATA

RUN NUMBER	492	493	494	495	496	497
PC (PSIA)	639.0	637.0	616.0	621.0	634.0	637.0
ALT (MU HG A)	24.0	26.0	24.0	27.0	26.0	27.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	170.0	160.0	165.0	165.0	165.0	166.0
TH2 (F)	155.0	160.0	151.0	151.0	151.0	151.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q0001	3.360	2.950	3.420	3.230	3.030	3.350
Q0002	5.250	5.310	5.020	5.380	5.480	5.530
Q0003	7.010	6.890	6.950	6.790	6.640	7.050
Q0004	6.810	6.370	7.750	6.180	6.100	6.620
Q004R	0.039	0.043	0.039	0.043	0.039	0.041
Q0006	5.630	5.270	5.630	5.320	5.220	5.900
Q0008	7.340	6.990	7.250	8.050	6.010	7.650
Q0009	6.580	6.550	7.130	7.770	5.500	7.280
Q0010	2.960	2.530	2.890	3.030	2.690	2.960
Q0011	2.730	2.460	2.470	2.080	2.280	2.660
Q0013	2.360	2.270	2.080	2.270	2.050	2.320
Q0014	1.500	1.440	1.650	1.900	1.840	1.860
Q0015	3.600	3.170	3.950	4.250	4.060	3.970
Q0016	2.320	2.330	2.220	2.150	-----	2.240
Q0017	1.760	1.740	1.930	2.130	-----	1.800
Q0019	2.840	2.940	2.330	3.450	2.840	2.810
Q0023	0.025	0.063	0.051	0.049	0.021	0.069
Q0024	0.028	0.085	0.061	0.061	0.032	0.087
Q0025	0.046	0.186	0.140	0.130	0.056	0.177

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 19, LOG 19.2

GIMBAL PATTERN --- 9A MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	492	493	494	495	496	497
PC (PSIA)	639.0	637.0	616.0	621.0	634.0	637.0
ALT (MU HG A)	24.0	26.0	24.0	27.0	26.0	27.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	170.0	160.0	165.0	165.0	165.0	166.0
TH2 (F)	155.0	160.0	151.0	151.0	151.0	151.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q044	0.091	0.132	0.117	0.138	0.092	0.135
Q046	0.242	0.248	0.222	0.278	0.323	0.276
Q111A	0.118	0.184	-----	-----	-----	-----
Q112A	-----	-----	0.065	0.080	-----	-----
Q120A	-----	-----	-----	-----	0.052	0.095

CASE ---------- RUN SERIES 19, LOG 19.2.2A & AB

GIMBAL PATTERN --- 9B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW DEFLECTIONS
RUNS 536-541 LOG A AND RUNS 548-550 LOG AB
ALSO SEE LOG 19.2.2B

NORMALIZED TEST DATA

RUN NUMBER	536	537	538	539	540	541	548	549	550
PC (PSIA)	677.0	755.0	699.0	693.0	688.0	699.0	658.0	695.0	674.0
ALT (MU HG A)	25.0	27.0	25.0	24.0	20.0	25.0	25.0	24.0	26.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	160.0	157.0	159.0	159.0	158.0	160.0	157.0	162.0	161.0
TH2 (F)	157.0	159.0	162.0	163.0	158.0	159.0	157.0	160.0	159.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC								
Q002	6.100	4.200	5.750	5.850	4.650	5.830	5.120	4.800	6.450
Q003	8.300	7.650	9.100	8.800	8.320	10.500	8.700	8.150	9.360
Q009	6.000	5.200	6.610	6.890	7.680	6.970	6.550	6.750	6.180
Q010	3.810	2.480	3.860	2.720	3.100	2.330	2.740	-----	2.280
Q013	3.540	4.150	5.050	3.740	3.350	3.780	3.620	3.620	3.610
Q014	2.450	3.100	3.560	4.130	-----	3.820	3.190	3.720	3.180
Q016	3.150	2.640	2.560	3.050	-----	2.700	2.550	3.000	2.560
Q017	2.530	1.760	2.150	2.460	1.770	1.740	2.120	-----	-----
Q023	-----	-----	-----	-----	-----	-----	0.700	1.920	1.820
Q024	-----	-----	-----	-----	-----	-----	-----	0.980	1.140
Q025	-----	-----	-----	-----	-----	-----	0.224	0.480	0.520
Q026	-----	0.183	0.188	0.121	0.123	-----	-----	-----	-----
Q027	-----	0.960	1.270	1.300	-----	-----	-----	-----	-----
Q028	-----	1.030	1.400	1.450	1.360	-----	-----	-----	-----
Q029	0.191	0.182	0.169	0.151	0.155	-----	-----	-----	-----
Q031	-----	-----	-----	-----	-----	-----	-----	0.675	1.180
Q032	-----	0.630	-----	0.295	0.680	-----	0.228	0.229	0.265
Q040	-----	0.448	0.670	1.160	1.320	0.690	-----	-----	-----
Q054	-----	-----	-----	-----	-----	-----	0.830	0.610	0.620

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 19, LOG 19.2.2A & AB

GIMBAL PATTERN --- 9B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW DEFLECTIONS
RUNS 536-541 LOG A AND RUNS 548-550 LOG AB
ALSO SEE LOG 19.2.2B

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	536	537	538	539	540	541	548	549	550
PC (PSIA)	677.0	755.0	699.0	693.0	688.0	699.0	658.0	695.0	674.0
ALT (MU HG A)	25.0	27.0	25.0	24.0	20.0	25.0	25.0	24.0	26.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	160.0	157.0	159.0	159.0	158.0	160.0	157.0	162.0	161.0
TH2 (F)	157.0	159.0	162.0	163.0	158.0	159.0	157.0	160.0	159.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC								
Q110B	1.270	1.730	-----	-----	-----	-----	1.010	1.060	1.170
Q111B	-----	-----	0.850	0.970	-----	-----	-----	-----	-----
Q112B	-----	-----	-----	-----	0.591	1.090	-----	-----	-----

CASE ---------- RUN SERIES 19, LOG 19.2.2B

GIMBAL PATTERN --- 9B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: NOMINAL STEADY STATE DEFLECTION WITH 0.8 DEGREES PITCH OR YAW
ALSO SEE LOG 19.2.2A & AB

NORMALIZED TEST DATA

RUN NUMBER	529	530	531	532	533	534	535
PC (PSIA)	676.0	695.0	685.0	685.0	680.0	656.0	688.0
ALT (MU HG A)	26.0	27.0	27.0	27.0	27.0	28.0	25.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	154.0	153.0	160.0	155.0	152.0	155.0	-----
TH2 (F)	159.0	156.0	158.0	156.0	154.0	161.0	-----
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
Q001	3.860	4.290	3.180	4.890	3.960	4.150	2.800
Q004	6.950	9.410	6.570	7.150	7.750	7.600	7.600
Q006	7.490	6.920	7.330	6.920	6.960	6.790	6.760
Q007	2.480	2.360	3.770	-----	-----	-----	-----
Q008	5.150	5.750	7.950	7.290	6.500	6.290	6.600
Q011	4.510	3.110	3.220	3.650	-----	4.120	4.270
Q015	3.350	3.870	4.540	3.130	3.540	3.460	3.970
Q019	1.870	2.250	2.740	2.450	2.700	2.420	2.370
Q020	0.074	0.074	0.027	-----	0.098	0.031	0.024
Q021	0.137	0.113	-----	-----	0.169	0.059	0.063
Q022	0.212	0.123	-----	0.276	0.191	0.274	0.190
Q030	-----	0.391	0.800	0.750	0.276	0.622	0.429
Q033	-----	0.226	0.239	-----	-----	-----	-----
Q034	0.201	0.298	0.237	0.216	0.292	0.182	0.323
Q035	1.360	1.110	1.430	1.320	1.120	1.320	0.672
Q036	-----	1.260	1.610	1.160	1.470	1.370	0.765
Q037	0.307	0.545	0.179	0.213	0.234	0.242	0.133
Q038	0.340	-----	0.520	-----	-----	-----	-----
Q040	1.200	-----	1.240	-----	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 19, LOG 19.2.2B

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: NOMINAL STEADY STATE DEFLECTION WITH 0.8 DEGREES PITCH OR YAW
ALSO SEE LOG 19.2.2A & AB

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	529	530	531	532	533	534	535
PC (PSIA)	676.0	695.0	685.0	685.0	680.0	656.0	688.0
ALT (MU HG A)	26.0	27.0	27.0	27.0	27.0	28.0	25.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	154.0	153.0	160.0	155.0	152.0	155.0	-----
TH2 (F)	159.0	156.0	158.0	156.0	154.0	161.0	-----
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
0041	0.190	0.165	0.112	-----	-----	-----	-----
0043	0.317	0.360	0.198	-----	-----	-----	-----
0052	5.130	3.500	-----	-----	-----	-----	-----

CASE ---------- RUN SERIES 19, LOG 19.2.3A

GIMBAL PATTERN --- 9B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW
ALSO SEE LOG 19.2.3B

NORMALIZED TEST DATA

RUN NUMBER	542	543	544	545	546	547
PC (PSIA)	687.0	687.0	699.0	699.0	690.0	706.0
ALT (MU HG A)	23.0	24.0	25.0	24.0	26.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	156.0	158.0	153.0	157.0	160.0	158.0
TH2 (F)	160.0	156.0	156.0	159.0	158.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q002	5.700	2.380	6.550	5.070	5.850	8.700
Q003	9.790	7.160	9.250	8.040	8.900	-----
Q009	7.100	7.550	6.170	7.950	5.820	-----
Q010	2.830	-----	2.610	2.420	2.610	2.500
Q013	3.720	3.160	5.120	3.360	-----	3.460
Q014	3.420	3.810	5.310	3.140	3.380	3.770
Q016	2.980	2.780	1.830	2.630	2.200	2.370
Q017	1.630	1.250	2.380	1.550	1.930	2.650
Q023	0.056	0.061	0.072	0.075	0.076	0.066
Q024	0.123	0.113	0.099	-----	0.110	0.096
Q025	0.199	0.210	0.215	-----	0.218	0.210
Q031	0.033	0.034	0.041	0.039	0.037	0.038
Q032	0.058	0.053	0.061	0.064	0.054	0.063
Q054	0.730	0.500	0.720	0.700	0.750	0.590
Q120B	-----	-----	-----	-----	-----	0.142
Q121B	-----	-----	0.105	0.085	-----	-----
Q122B	0.015	0.048	-----	-----	-----	-----

CASE ---------- RUN SERIES 19, LOG 19.2.3B

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREE PITCH OR YAW DEFLECTIONS
ALSO SEE LOG 19.2.3A

NORMALIZED TEST DATA

RUN NUMBER	523	524	525	526	527	528
PC (PSIA)	680.0	699.0	713.0	703.0	708.0	695.0
ALT (MU HG A)	26.0	27.0	27.0	28.0	27.0	26.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	161.0	163.0	157.0	162.0	160.0	157.0
TH2 (F)	161.0	161.0	157.0	156.0	158.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q001	3.720	3.120	2.620	2.680	3.360	3.190
Q004	6.200	6.800	6.970	6.900	7.200	-----
Q006	6.990	6.950	6.720	6.670	6.800	8.000
Q007	2.360	2.980	3.710	2.360	2.290	2.590
Q008	4.090	7.000	-----	-----	7.260	6.510
Q011	3.760	3.510	4.650	4.950	3.670	3.840
Q015	2.490	3.940	3.890	2.920	3.670	3.640
Q019	1.490	2.340	2.320	1.890	2.270	2.450
Q020	0.005	0.004	0.003	-----	0.004	-----
Q022	0.023	0.024	0.018	0.014	0.013	-----
Q030	0.029	0.023	0.019	0.026	0.018	0.016
Q033	0.013	0.010	0.016	0.016	0.012	-----
Q034	0.037	0.036	0.023	0.027	0.036	-----
Q035	0.084	0.082	0.070	0.075	0.084	0.065
Q036	0.105	0.095	0.100	0.106	0.096	0.081
Q037	0.109	0.114	0.111	0.118	0.111	0.102
Q040	0.043	0.035	0.025	0.038	0.051	0.011
Q041	0.031	0.030	0.031	0.033	0.032	0.034
Q043	0.021	0.023	0.019	0.024	0.020	0.016

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 19, LOG 19.2.3B

GIMBAL PATTERN --- 9R MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREE PITCH OR YAW DEFLECTIONS
ALSO SEE LOG 19.2.3A

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	523	524	525	526	527	528
PC (PSIA)	680.0	699.0	713.0	703.0	708.0	695.0
ALT (MU HG A)	26.0	27.0	27.0	28.0	27.0	26.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	161.0	163.0	157.0	162.0	160.0	157.0
TH2 (F)	161.0	161.0	157.0	156.0	158.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q052	4.780	2.340	2.880	3.930	3.170	3.460

CASE ---------- RUN SERIES 19, LOG 19.3

GIMBAL PATTERN --- 9B MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW

NORMALIZED TEST DATA

RUN NUMBER	500	501	502	503	504	505
PC (PSIA)	650.0	650.0	623.0	616.0	615.0	622.0
ALT (MU HG A)	25.0	24.0	27.0	20.0	24.0	25.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	162.0	171.0	169.0	170.0	167.0	169.0
TH2 (F)	147.0	150.0	151.0	150.0	151.0	153.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q001	-----	3.070	3.100	2.290	-----	3.080
Q002	4.260	5.240	5.520	2.950	5.670	5.920
Q003	6.360	8.210	7.160	5.950	8.230	8.820
Q004	6.660	6.940	7.820	6.250	7.140	6.860
Q004R	0.042	0.040	0.041	0.041	0.041	0.037
Q006	6.100	6.410	7.150	5.820	-----	6.120
Q008	6.850	7.150	6.640	7.430	7.080	7.240
Q009	7.000	6.260	6.910	7.570	6.300	6.340
Q010	3.970	3.400	2.980	3.980	2.720	2.710
Q011	4.160	3.230	4.110	4.040	3.580	3.160
Q013	3.150	2.760	3.270	2.640	3.080	3.110
Q014	2.630	2.560	2.360	2.560	2.450	2.480
Q015	3.720	3.580	3.320	3.720	3.190	2.280
Q016	2.440	2.280	1.950	2.220	1.960	2.480
Q017	1.120	1.370	2.020	1.180	1.000	1.460
Q019	2.860	2.550	2.800	3.380	2.060	2.440
Q023	0.063	0.062	0.046	0.067	0.085	0.077
Q024	0.079	0.081	-----	0.082	0.087	0.080
Q025	0.169	0.173	-----	0.174	0.172	0.165

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 19, LOG 19.3

GIMBAL PATTERN --- 98 MIXTURE RATIO ---- 5.00
NOMINAL PC ------- 632.0 PSIA INTERSTAGE ------- OFF

REMARKS: NOMINAL STEADY STATE WITH 0.8 DEGREES PITCH OR YAW

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	500	501	502	503	504	505
PC (PSIA)	650.0	650.0	623.0	616.0	615.0	622.0
ALT (MU HG A)	25.0	24.0	27.0	20.0	24.0	25.0
PO2 (PSIA)	1125.0	1125.0	1125.0	1125.0	1125.0	1125.0
PH2 (PSIA)	1170.0	1170.0	1170.0	1170.0	1170.0	1170.0
TO2 (F)	162.0	171.0	169.0	170.0	167.0	169.0
TH2 (F)	147.0	150.0	151.0	150.0	151.0	153.0
DO2 (IN)	0.388	0.388	0.388	0.388	0.388	0.388
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q044	0.119	0.112	0.094	0.013	0.153	0.117
Q046	0.501	0.405	0.370	0.390	0.455	0.435
Q110B	0.273	0.236	-----	-----	-----	-----
Q111B	-----	-----	0.101	0.117	-----	-----
Q112B	-----	-----	-----	-----	0.072	0.070

CASE ---------- RUN SERIES 20, LOG 20.1.1 AND LOG 20.1.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT
LOG 20.1.1 RUNS 551-558, LOG 20.1.2 RUNS 571-576

NORMALIZED TEST DATA

RUN NUMBER	551	552	553	554	555	556	557	558	571	572	573
PC (PSIA)	722.0	728.0	733.0	700.0	734.0	730.0	724.0	725.0	719.0	710.0	727.0
ALT (MU HG A)	25.0	29.0	27.0	26.0	27.0	25.0	26.0	25.0	24.0	29.0	27.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	156.0	162.0	160.0	160.0	160.0	153.0	160.0	156.0	160.0	157.0	153.0
TH2 (F)	156.0	156.0	157.0	156.0	160.0	160.0	163.0	161.0	156.0	159.0	163.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291

TRANSDUCER OUTPUT

TRANSDUCER ID	BTU/SQ-FT-SEC										
Q001	-----	-----	-----	-----	-----	-----	-----	-----	5.040	3.380	2.620
Q002	-----	4.460	5.150	3.730	4.700	4.610	4.240	5.300	-----	-----	-----
Q003	6.060	5.270	5.440	4.470	5.000	4.580	4.820	5.700	-----	-----	-----
Q004	-----	-----	-----	-----	-----	-----	-----	-----	4.420	3.530	4.900
Q006	-----	-----	-----	-----	-----	-----	-----	-----	4.910	3.380	4.510
Q008	-----	-----	-----	-----	-----	-----	-----	-----	8.690	-----	7.360
Q009	8.650	8.290	8.510	7.640	9.150	8.760	9.210	7.890	-----	-----	-----
Q010	5.500	4.750	3.320	5.770	-----	-----	-----	-----	-----	-----	-----
Q011	-----	-----	-----	-----	-----	-----	-----	-----	2.220	1.540	0.940
Q013	3.760	4.340	3.820	7.760	3.620	2.850	4.940	3.380	-----	-----	-----
Q014	2.420	-----	2.690	3.890	2.510	3.340	2.920	3.010	-----	-----	-----
Q015	-----	-----	-----	-----	-----	-----	-----	-----	11.600	-----	6.380
Q016	2.560	-----	2.320	4.200	2.290	3.800	3.000	2.010	-----	-----	-----
Q017	-----	2.810	2.880	2.820	2.600	2.620	2.640	2.530	-----	-----	-----
Q019	-----	-----	-----	-----	-----	-----	-----	-----	7.510	7.390	7.450
Q020	-----	-----	-----	-----	-----	-----	-----	-----	0.001	0.001	0.001
Q021	-----	-----	-----	-----	-----	-----	-----	-----	0.001	0.001	0.001
Q022	-----	-----	-----	-----	-----	-----	-----	-----	0.023	-----	0.017
Q023	0.038	-----	0.081	0.093	0.071	0.047	-----	0.069	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.1.1 AND LOG 20.1.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT
LOG 20.1.1 RUNS 551-558, LOG 20.1.2 RUNS 571-576

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	551	552	553	554	555	556	557	558	571	572	573
PC (PSIA)	722.0	728.0	733.0	700.0	734.0	730.0	724.0	725.0	719.0	710.0	727.0
ALT (MU HG A)	25.0	29.0	27.0	26.0	27.0	25.0	26.0	25.0	24.0	29.0	27.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	156.0	162.0	160.0	160.0	160.0	153.0	160.0	156.0	160.0	157.0	153.0
TH2 (F)	156.0	156.0	157.0	156.0	160.0	160.0	163.0	161.0	156.0	159.0	163.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC										
Q024	0.063	0.122	0.119	0.136	0.109	0.079	0.126	0.121	-----	-----	-----
Q025	0.141	0.256	0.253	0.302	0.224	0.200	0.279	0.248	-----	-----	-----
Q030	-----	-----	-----	-----	-----	-----	-----	-----	0.027	-----	0.022
Q031	0.043	-----	0.057	0.047	0.038	0.023	0.044	0.038	-----	-----	-----
Q032	0.074	0.062	0.077	0.070	0.081	0.073	0.094	-----	-----	-----	-----
Q034	-----	-----	-----	-----	-----	-----	-----	-----	0.055	-----	0.047
Q035	-----	-----	-----	-----	-----	-----	-----	-----	0.118	0.122	0.143
Q038	-----	-----	-----	-----	-----	-----	-----	-----	0.001	0.001	0.001
Q044	0.148	-----	0.131	0.200	0.167	0.161	0.168	0.169	-----	-----	-----
Q110A	0.213	-----	0.240	-----	-----	-----	-----	-----	-----	-----	-----
Q111A	-----	-----	-----	-----	0.136	0.081	-----	-----	-----	-----	-----
Q112A	-----	-----	-----	-----	-----	0.037	-----	0.024	-----	-----	-----
Q121A	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q122A	-----	-----	-----	-----	-----	-----	-----	-----	0.013	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.1.1 AND LOG 20.1.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT
LOG 20.1.1 RUNS 551-558, LOG 20.1.2 RUNS 571-576

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	574	575	576
PC (PSIA)	754.0	744.0	739.0
ALT (MU HG A)	23.0	25.0	27.0
PO2 (PSIA)	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0
TO2 (F)	163.0	159.0	158.0
TH2 (F)	160.0	156.0	153.0
DO2 (IN)	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q001	4.050	2.790	4.240
Q002	-----	-----	-----
Q003	-----	-----	-----
Q004	3.900	2.400	4.140
Q006	3.560	4.350	4.970
Q008	7.580	6.660	7.810
Q009	-----	-----	-----
Q010	-----	-----	-----
Q011	1.100	1.840	-----
Q013	-----	-----	-----
Q014	-----	-----	-----
Q015	10.200	7.910	10.500
Q016	-----	-----	-----
Q017	-----	-----	-----
Q019	7.590	7.980	7.750
Q020	0.003	0.001	0.001
Q021	0.001	0.001	0.001
Q022	0.017	0.001	0.008
Q023	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.1.1 AND LOG 20.1.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT
LOG 20.1.1 RUNS 551-558, LOG 20.1.2 RUNS 571-576

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	574	575	576
PC (PSIA)	754.0	744.0	739.0
ALT (MU HG A)	23.0	25.0	27.0
PO2 (PSIA)	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0
TO2 (F)	163.0	159.0	158.0
TH2 (F)	160.0	156.0	153.0
DO2 (IN)	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC		
Q024	-----	-----	-----
Q025	-----	-----	-----
Q030	0.020	0.019	0.015
Q031	-----	-----	-----
Q032	-----	-----	-----
Q034	0.031	0.029	0.048
Q035	0.103	0.096	0.110
Q038	0.001	0.001	0.001
Q044	-----	-----	-----
Q110A	-----	-----	-----
Q111A	-----	-----	-----
Q112A	-----	-----	-----
Q121A	0.098	-----	-----
Q122A	-----	-----	-----

CASE ---------- RUN SERIES 20, LOG 20A.1.2

GIMBAL PATTERN --- 2B-MOD MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES NUMBER 3 ENGINE OUT. MODIFIED GIMBAL PATTERN 2B IS THE SAME AS 2B EXCEPT THAT THE INOPERATIVE ENGINE IS ALSO GIMBALLED

NORMALIZED TEST DATA

RUN NUMBER	583	584	585	586	587
PC (PSIA)	731.0	736.0	708.0	730.0	742.0
ALT (MU HG A)	20.0	22.0	27.0	26.0	27.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	160.0	161.0	156.0	163.0	160.0
TH2 (F)	160.0	160.0	162.0	156.0	162.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC				
Q001	3.490	4.590	4.260	2.700	4.760
Q004	3.570	4.220	3.600	-----	4.200
Q006	3.940	4.060	4.250	-----	3.720
Q008	6.480	8.670	5.490	6.460	6.740
Q011	2.650	0.830	1.520	0.820	1.310
Q019	9.020	7.770	-----	8.590	8.960
Q020	0.001	-----	0.001	0.001	-----
Q021	0.001	0.001	0.001	0.001	0.001
Q022	0.019	0.019	-----	0.013	0.027
Q023	0.112	0.097	0.092	0.103	0.101
Q024	0.129	0.126	0.123	0.131	0.126
Q030	0.046	-----	-----	-----	0.028
Q033	-----	0.022	0.033	0.023	0.032
Q043	0.009	0.007	0.010	0.009	0.011
Q046	-----	0.343	0.161	0.254	0.144

CASE ---------- RUN SERIES 20, LOG 20.2.1 AND LOG 20.2.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT AND INTERSTAGE ON. INTERSTAGE 'A' GAGES AT 29, 'B' GAGES AT 0 DEGREES
LOG 20.2.1 RUNS 559-564, LOG 20.2.2 RUNS 565-570

NORMALIZED TEST DATA

RUN NUMBER	559	560	561	562	563	564	565	566	567	568	569
PC (PSIA)	729.0	735.0	724.0	729.0	715.0	719.0	735.0	723.0	751.0	730.0	729.0
ALT (MU HG A)	23.0	27.0	20.0	24.0	25.0	22.0	25.0	25.0	28.0	27.0	24.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	163.0	161.0	160.0	158.0	156.0	159.0	156.0	157.0	155.0	162.0	157.0
TH2 (F)	156.0	163.0	160.0	167.0	158.0	161.0	156.0	157.0	156.0	160.0	157.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291

TRANSDUCER OUTPUT
BTU/SQ-FT-SEC

TRANSDUCER ID											
Q001	-----	-----	-----	-----	-----	-----	4.310	3.280	3.110	4.500	3.580
Q002	-----	-----	-----	-----	-----	-----	4.750	3.480	3.780	5.470	8.970
Q003	5.000	4.070	3.390	5.560	4.270	4.100	-----	-----	-----	-----	-----
Q004	-----	-----	-----	-----	-----	-----	4.450	3.800	3.950	3.920	3.990
Q006	-----	-----	-----	-----	-----	-----	5.190	4.300	4.740	4.270	4.070
Q008	-----	-----	-----	-----	-----	-----	7.650	8.280	-----	8.850	8.800
Q009	7.720	7.500	7.690	7.200	8.820	7.740	-----	-----	-----	-----	-----
Q010	-----	3.900	5.830	3.100	5.320	5.570	-----	-----	-----	-----	-----
Q015	-----	-----	-----	-----	-----	-----	11.100	10.400	9.570	7.850	11.800
Q017	3.340	3.040	2.370	3.140	2.590	2.260	-----	-----	-----	-----	-----
Q019	-----	-----	-----	-----	-----	-----	-----	8.290	8.600	-----	7.850
Q020	-----	-----	-----	-----	-----	-----	-----	0.019	0.037	0.025	0.027
Q021	-----	-----	-----	-----	-----	-----	0.009	0.027	0.035	0.025	0.024
Q022	-----	-----	-----	-----	-----	-----	0.135	0.147	0.136	0.114	0.128
Q023	1.670	1.640	1.620	1.180	1.110	1.380	-----	-----	-----	-----	-----
Q024	-----	-----	2.060	1.450	1.980	2.740	-----	-----	-----	-----	-----
Q025	0.610	0.970	0.630	0.680	0.730	0.600	-----	-----	-----	-----	-----
Q030	-----	-----	-----	-----	-----	-----	0.063	-----	0.080	0.066	0.108
Q031	1.200	-----	1.500	0.700	1.200	1.700	-----	-----	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.2.1 AND LOG 20.2.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT AND INTERSTAGE ON. INTERSTAGE 'A' GAGES AT 29, 'B' GAGES AT 0 DEGREES
LOG 20.2.1 RUNS 559-564, LOG 20.2.2 RUNS 565-570

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	559	560	561	562	563	564	565	566	567	568	569
PC (PSIA)	729.0	735.0	724.0	729.0	715.0	719.0	735.0	723.0	751.0	730.0	729.0
ALT (MU HG A)	23.0	27.0	20.0	24.0	25.0	22.0	25.0	25.0	28.0	27.0	24.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	163.0	161.0	160.0	158.0	156.0	159.0	156.0	157.0	155.0	162.0	157.0
TH2 (F)	156.0	163.0	160.0	167.0	158.0	161.0	156.0	157.0	156.0	160.0	157.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC										
Q032	0.660	1.340	1.400	0.870	1.900	1.260	-----	-----	-----	-----	-----
Q044	-----	0.320	0.430	0.150	0.490	0.360	-----	-----	-----	-----	-----
Q110A	-----	-----	-----	-----	0.350	0.240	-----	-----	-----	-----	-----
Q111A	-----	-----	0.290	0.330	-----	-----	-----	-----	-----	-----	-----
Q112A	0.350	0.370	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q120A	-----	-----	-----	-----	-----	-----	0.540	0.390	-----	-----	-----
Q121A	-----	-----	-----	-----	-----	-----	-----	-----	1.450	1.330	-----
Q122A	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Q26A	-----	-----	-----	-----	-----	-----	0.070	0.130	0.170	0.140	-----
Q26B	0.450	0.520	0.380	0.290	0.310	0.320	-----	-----	-----	-----	-----
Q27A	-----	-----	-----	-----	-----	-----	0.660	0.670	0.520	1.120	1.320
Q27B	1.360	1.890	2.040	2.620	1.740	2.030	-----	-----	-----	-----	-----
Q28A	-----	-----	-----	-----	-----	-----	0.770	0.560	-----	0.370	-----
Q28B	2.450	1.950	2.040	3.110	1.620	2.050	-----	-----	-----	-----	-----
Q29B	-----	0.990	1.030	-----	0.760	0.810	-----	-----	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.2.1 AND LOG 20.2.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT AND INTERSTAGE ON. INTERSTAGE 'A' GAGES AT 29, 'B' GAGES AT 0 DEGREES
LOG 20.2.1 RUNS 559-564, LOG 20.2.2 RUNS 565-570

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	570
PC (PSIA)	718.0
ALT (MU HG A)	27.0
PO2 (PSIA)	1260.0
PH2 (PSIA)	1345.0
TO2 (F)	157.0
TH2 (F)	165.0
DO2 (IN)	0.361
DH2 (IN)	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC
Q001	3.910
Q002	-----
Q003	-----
Q004	3.510
Q006	3.930
Q008	8.110
Q009	-----
Q010	-----
Q015	11.100
Q017	-----
Q019	7.980
Q020	0.022
Q021	-----
Q022	0.039
Q023	-----
Q024	-----
Q025	-----
Q030	0.093
Q031	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 20, LOG 20.2.1 AND LOG 20.2.2

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF OUTBOARD ENGINE OUT ON BASE REGION HEATING RATES
NUMBER 3 ENGINE OUT AND INTERSTAGE ON. INTERSTAGE 'A' GAGES AT 29, 'B' GAGES AT 0 DEGREES
LOG 20.2.1 RUNS 559-564, LOG 20.2.2 RUNS 565-570

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	570
PC (PSIA)	718.0
ALT (MU HG A)	27.0
PO2 (PSIA)	1260.0
PH2 (PSIA)	1345.0
TO2 (F)	157.0
TH2 (F)	165.0
DO2 (IN)	0.361
DH2 (IN)	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC
Q032	-----
Q044	-----
Q110A	-----
Q111A	-----
Q112A	-----
Q120A	-----
Q121A	-----
Q122A	0.450
Q26A	0.100
Q26B	-----
Q27A	0.880
Q27B	-----
Q28A	-----
Q28B	-----
Q29B	-----

CASE ---------- RUN SERIES 21, LOG 21.1

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE INBOARD AT 3 DEGREES ON BASE REGION HEATING RATES

NORMALIZED TEST DATA

RUN NUMBER	588	589	590	591	592	593
PC (PSIA)	715.0	703.0	703.0	690.0	697.0	697.0
ALT (MU HG A)	27.0	27.0	24.0	-----	26.0	24.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	158.0	160.0	153.0	163.0	163.0	159.0
TH2 (F)	158.0	160.0	153.0	163.0	163.0	159.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q001	4.530	-----	5.950	6.340	5.460	7.510
Q002	7.100	-----	8.150	9.310	8.350	10.600
Q003	7.260	7.700	-----	9.790	9.150	9.860
Q004	6.810	7.050	8.510	7.060	6.400	7.760
Q006	6.580	5.320	6.170	6.300	6.450	-----
Q008	10.600	11.800	12.200	11.100	12.600	11.200
Q009	-----	10.660	9.670	9.500	10.700	8.740
Q010	-----	2.240	1.380	1.770	3.380	1.960
Q011	2.990	2.950	2.800	2.770	3.270	2.940
Q013	-----	5.510	4.550	4.750	5.280	4.840
Q014	4.260	3.700	3.370	3.870	2.710	4.700
Q015	6.370	7.300	5.840	-----	6.860	6.440
Q016	-----	-----	-----	-----	-----	2.490
Q017	2.620	2.720	-----	-----	2.220	3.190
Q019	3.410	3.080	3.120	3.410	2.790	3.150

CASE ---------- RUN SERIES 21, LOG 21.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE INBOARD AT 3 DEGREES WITH INTERSTAGE

NORMALIZED TEST DATA

RUN NUMBER	594	595	596	597	598	599	600
PC (PSIA)	719.0	715.0	714.0	702.0	675.0	679.0	696.0
ALT (MU HG A)	27.0	24.0	25.0	26.0	27.0	25.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	162.0	156.0	158.0	162.0	153.0	160.0	162.0
TH2 (F)	162.0	154.0	157.0	156.0	155.0	162.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
Q001	5.160	5.760	5.610	5.850	5.490	5.340	3.810
Q002	8.920	7.850	8.000	9.050	8.330	8.190	7.430
Q003	10.300	9.610	7.920	-----	9.140	7.190	7.020
Q004	8.770	7.550	5.860	-----	7.140	6.190	6.650
Q006	-----	8.000	7.930	7.210	7.350	6.410	6.540
Q008	13.000	10.950	10.200	10.100	11.100	10.900	12.600
Q009	10.600	10.220	8.100	-----	10.400	8.510	8.210
Q010	2.160	2.720	3.740	-----	2.200	-----	2.850
Q011	2.100	3.740	2.430	4.100	2.740	3.170	4.420
Q013	5.460	5.290	4.690	-----	4.200	4.610	9.040
Q014	3.100	2.720	2.590	3.320	3.560	5.120	5.330
Q015	6.040	5.940	5.850	7.300	7.260	7.050	10.400
Q016	2.580	3.230	-----	-----	3.370	-----	3.340
Q017	3.750	2.570	2.600	2.760	2.210	2.730	2.560
Q019	3.340	3.030	3.260	3.040	4.040	4.800	4.040

CASE ---------- RUN SERIES 22, LOG 22.1

GIMBAL PATTERN --- 68 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE OUTBOARD AT 3 DEGREES ON BASE REGION HEATING RATES. RUN 604 QUESTIONABLE DUE TO EARLY DIAPHRAGM BREAK AND EARLY BLAST WAVE RETURN

NORMALIZED TEST DATA

RUN NUMBER	601	602	603	604	605	606
PC (PSIA)	701.0	722.0	717.0	673.0	690.0	691.0
ALT (MU HG A)	27.0	26.0	28.0	25.0	24.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	162.0	163.0	160.0	152.0	150.0	162.0
TH2 (F)	162.0	158.0	155.0	150.0	160.0	158.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC					
Q020	0.016	0.001	0.001	0.001	0.001	0.001
Q021	0.012	0.001	0.001	0.001	0.001	0.001
Q022	0.020	0.008	0.006	0.030	0.010	0.007
Q023	0.044	0.044	0.048	0.011	0.055	-----
Q024	0.092	0.093	0.094	0.083	0.063	0.081
Q025	0.188	0.186	0.210	0.202	0.190	0.180
Q030	0.011	0.018	0.005	0.004	0.009	0.006
Q031	0.032	0.019	0.027	0.029	0.029	0.047
Q032	0.061	0.057	0.056	0.061	0.057	0.073
Q034	0.059	0.060	0.027	0.015	0.019	0.016
Q035	0.119	0.022	0.056	0.028	0.051	0.033
Q037	0.055	0.039	0.071	0.045	0.063	0.063
Q044	0.114	0.142	0.120	0.196	0.121	0.160
Q110	0.552	0.125	-----	-----	-----	-----
Q111	-----	-----	0.180	0.194	-----	-----
Q112	-----	-----	-----	-----	0.054	0.114

CASE ---------- RUN SERIES 22, LOG 22.2

GIMBAL PATTERN --- 68 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- ON

REMARKS: EFFECT OF SINGLE ACTUATOR FAILURE OUTBOARD AT 3 DEGREES WITH INTERSTAGE ON, ON BASE REGION HEATING RATES

NORMALIZED TEST DATA

RUN NUMBER	607	608	609	610	611	612	613
PC (PSIA)	702.0	690.0	692.0	687.0	704.0	704.0	698.0
ALT (MU HG A)	25.0	27.0	27.0	25.0	27.0	26.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	156.0	163.0	158.0	160.0	161.0	163.0	162.0
TH2 (F)	156.0	158.0	160.0	160.0	165.0	160.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT BTU/SQ-FT-SEC						
Q020	0.055	0.049	0.029	0.024	0.039	0.027	0.018
Q021	0.121	0.040	0.055	0.094	0.048	0.046	0.060
Q022	0.132	0.185	0.161	0.244	0.133	0.108	0.120
Q023	0.700	0.780	-----	0.920	1.070	-----	0.620
Q024	1.000	-----	-----	-----	1.240	1.220	1.230
Q025	0.580	-----	0.324	0.452	0.350	-----	0.610
Q026	0.162	0.141	0.098	0.208	0.185	-----	0.167
Q027	1.290	1.340	1.230	1.160	1.180	-----	1.230
Q029	-----	0.470	0.360	0.300	0.260	0.186	0.149
Q030	0.218	0.199	0.198	0.185	0.244	0.238	0.084
Q031	0.371	0.570	0.415	0.530	0.475	-----	0.341
Q032	0.660	0.710	0.488	0.406	0.424	0.616	0.658
Q044	0.132	0.176	0.202	0.272	0.390	0.177	0.190
Q110	-----	-----	-----	-----	0.341	-----	0.277
Q111	-----	-----	0.188	0.388	-----	-----	-----
Q112	0.176	0.135	-----	-----	-----	-----	-----

CASE ---------- RUN SERIES 23, LOG 23.1.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH ACTUATOR FAILURES INBOARD ON NO 4 ENGINE AT 1.6 DEGREES
ROW L GAGES BETWEEN ENGINE 4 AND 5

NORMALIZED TEST DATA

RUN NUMBER	625	665	666	667	668	669
PC (PSIA)	672.0	752.0	710.0	732.0	743.0	720.0
ALT (MU HG A)	23.0	23.0	24.0	25.0	26.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	150.0	153.0	150.0	148.0	155.0	153.0
TH2 (F)	159.0	156.0	160.0	156.0	155.0	143.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
P005	-----	0.026	0.038	0.037	0.037	0.037
P006	-----	0.025	0.033	0.026	0.030	-----
QK01	-----	9.430	-----	9.600	5.350	5.660
QK02	-----	3.660	-----	3.040	2.600	3.090
QK03	6.400	5.000	6.600	5.300	5.300	4.200
QK04	5.900	3.520	3.330	3.500	3.480	3.200
QK05	-----	2.660	2.200	2.800	2.420	2.920
QK06	-----	0.915	1.770	2.500	-----	1.230
QL02	9.860	-----	7.850	-----	2.360	3.340
QL03	-----	1.580	5.500	5.270	2.360	4.440
QL04	-----	2.530	3.300	2.060	1.730	2.000
QL05	1.770	0.745	0.220	1.520	2.080	-----
QL06	-----	1.270	1.430	1.410	1.370	1.530
QM01	-----	2.300	3.110	-----	2.580	3.520
QM02	15.600	3.570	3.200	-----	3.700	4.150
QM03	8.000	3.550	3.200	3.460	5.700	6.200
QM04	4.800	2.500	2.420	2.920	4.170	4.520
QM05	-----	2.500	2.420	2.920	4.170	4.520
QM06	-----	2.000	1.430	2.180	2.920	4.200

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.1.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH ACTUATOR FAILURES INBOARD ON NO 4 ENGINE AT 1.6 DEGREES
ROW L GAGES BETWEEN ENGINE 4 AND 5

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	625	665	666	667	668	669
PC (PSIA)	672.0	752.0	710.0	732.0	743.0	720.0
ALT (MU HG A)	23.0	23.0	24.0	25.0	26.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	150.0	153.0	150.0	148.0	155.0	153.0
TH2 (F)	159.0	156.0	160.0	156.0	155.0	143.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
Q003	7.400	5.800	6.200	6.350	4.580	8.900
Q004	5.750	-----	-----	-----	-----	-----
Q016	-----	2.800	1.700	-----	2.650	-----
Q017	-----	0.940	1.150	1.090	0.655	0.675
Q024	-----	0.099	0.085	0.160	0.086	0.218
Q024R	-----	-----	-----	-----	0.001	-----
Q025	0.298	-----	-----	0.001	0.131	-----
Q044	-----	0.141	0.103	0.145	0.107	0.140

CASE ---------- RUN SERIES 23, LOG 23.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE -------- OFF

REMARKS: CENTER NOZZLE WALL ENVIRONMENT WITH SINGLE ACTUATOR FAILURE INBOARD.
NOTE: QK03 AND QK04 RUN 629 RESULTS QUESTIONABLE SINCE OSCILLOSCOPE TRACE EITHER COINCIDES OR OFF SCALE. M GAGES AT 315, L AT 292.5, K AT 270 DEGREES.

NORMALIZED TEST DATA

RUN NUMBER	650	651	652	653	654	655	627	628	629
PC (PSIA)	701.0	690.0	733.0	695.0	706.0	695.0	700.0	680.0	715.0
ALT (MU HG A)	27.0	27.0	27.0	30.0	-----	19.0	26.0	25.0	27.0
PO2 (PSIA)	-----	-----	-----	-----	-----	-----	1285.0	1285.0	1280.0
PH2 (PSIA)	-----	-----	-----	-----	-----	-----	1235.0	1235.0	1235.0
TO2 (F)	156.0	156.0	152.0	153.0	144.0	143.0	160.0	162.0	160.0
TH2 (F)	156.0	155.0	145.0	150.0	133.0	153.0	160.0	156.0	160.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
P005	0.031	0.032	-----	0.034	0.029	0.040	-----	-----	-----
P006	0.025	0.027	0.028	0.030	0.030	0.037	-----	-----	-----
QK01	-----	-----	34.800	33.400	-----	37.800	-----	-----	-----
QK02	-----	13.400	15.500	14.200	-----	15.400	-----	-----	-----
QK03	-----	7.060	7.700	6.510	-----	7.350	-----	2.830	3.500
QK04	-----	3.880	4.270	3.760	-----	3.960	-----	2.620	2.700
QK05	2.800	2.670	2.860	2.520	-----	2.660	-----	-----	-----
QK06	2.510	1.960	2.320	2.190	-----	1.570	-----	-----	-----
QL02	-----	10.400	13.700	12.400	6.310	13.200	9.200	10.700	9.800
QL04	-----	-----	8.000	7.300	3.250	7.550	-----	-----	-----
QL04	4.080	4.030	4.970	4.420	-----	4.210	-----	-----	-----
QL05	2.760	2.470	2.800	2.560	-----	2.720	-----	-----	-----
QL06	2.210	2.030	2.290	1.900	1.010	1.860	-----	-----	-----
QM01	-----	11.100	4.400	6.340	3.580	8.220	-----	36.000	35.200
QM02	-----	10.800	5.140	6.420	3.980	7.600	14.000	14.200	14.100
QM03	-----	7.040	4.950	-----	4.790	6.600	6.750	7.650	7.400
QM04	-----	6.900	4.180	-----	4.720	5.800	4.400	4.600	4.500
QM05	3.820	3.160	3.300	3.260	2.940	4.000	-----	-----	-----
QM06	3.220	2.130	2.330	2.460	2.300	2.310	-----	-----	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER NOZZLE WALL ENVIRONMENT WITH SINGLE ACTUATOR FAILURE INBOARD.
NOTE: QK03 AND QK04 RUN 629 RESULTS QUESTIONABLE SINCE OSCILLOSCOPE TRACE EITHER COINCIDES OR OFF SCALE. M GAGES AT 315, L AT 292.5, K AT 270 DEGREES.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	650	651	652	653	654	655	627	628	629
PC (PSIA)	701.0	690.0	733.0	695.0	706.0	695.0	700.0	680.0	715.0
ALT (MU HG A)	27.0	27.0	27.0	30.0	-----	19.0	26.0	25.0	27.0
PO2 (PSIA)	-----	-----	-----	-----	-----	-----	1285.0	1285.0	1280.0
PH2 (PSIA)	-----	-----	-----	-----	-----	-----	1235.0	1235.0	1235.0
TO2 (F)	156.0	156.0	152.0	153.0	144.0	143.0	160.0	162.0	160.0
TH2 (F)	156.0	155.0	145.0	150.0	133.0	153.0	160.0	156.0	160.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q003	9.300	5.740	6.900	7.120	6.960	8.300	-----	-----	-----
Q004	7.100	4.800	5.870	5.570	5.890	6.900	-----	-----	-----
Q008	14.500	12.700	13.200	12.200	11.100	-----	11.800	-----	11.200
Q009	8.800	9.430	-----	9.100	8.920	9.700	-----	-----	-----
Q010	-----	-----	-----	-----	-----	-----	5.730	-----	4.000
Q016	3.460	3.210	3.590	4.000	3.060	4.220	-----	-----	-----
Q017	3.660	2.790	2.220	1.890	3.320	2.560	-----	-----	-----
Q044	-----	-----	-----	-----	-----	-----	0.032	-----	-----

CASE ---------- RUN SERIES 23, LOG 23.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD AT 0.9 DEG

NORMALIZED TEST DATA

RUN NUMBER	656	657	658	659	660
PC (PSIA)	690.0	695.0	712.0	723.0	695.0
ALT (MU HG A)	24.0	22.0	17.0	26.0	9.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	150.0	153.0	153.0	153.0	150.0
TH2 (F)	153.0	153.0	153.0	156.0	150.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	0.032	0.027	0.030	0.032	-----
P006	0.028	0.025	-----	0.028	-----
QK01	2.820	1.410	3.340	2.540	3.300
QK02	2.500	2.090	2.280	1.860	4.260
QK03	3.280	2.040	3.380	1.640	3.930
QK04	2.610	1.350	2.830	2.240	3.110
QK05	2.320	-----	-----	2.100	2.540
QK06	1.300	-----	-----	1.270	2.190
QL02	1.830	2.080	2.480	1.540	2.120
QL03	2.100	2.510	-----	1.940	2.880
QL04	-----	2.100	-----	1.640	2.080
QL05	1.180	1.610	1.950	1.320	1.860
QL06	-----	1.260	-----	0.950	1.550
QM01	0.785	-----	1.830	1.770	2.210
QM02	-----	3.300	2.440	2.380	3.150
QM03	4.890	4.160	2.880	3.490	4.230
QM04	-----	-----	2.640	3.580	4.560
QM05	3.700	3.680	1.930	1.850	3.680
QM06	3.520	2.780	1.970	1.390	3.330

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD AT 0.9 DEG

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	656	657	658	659	660
PC (PSIA)	690.0	695.0	712.0	723.0	695.0
ALT (MU HG A)	24.0	22.0	17.0	26.0	9.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	150.0	153.0	153.0	153.0	150.0
TH2 (F)	153.0	153.0	153.0	156.0	150.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q003	6.600	7.090	5.840	4.100	-----
Q004	6.400	6.510	7.040	4.240	-----
Q008	5.830	5.600	8.200	4.660	-----
Q009	-----	5.630	8.100	5.500	-----
Q016	2.280	2.840	3.180	2.830	-----
Q017	2.090	1.840	1.920	1.260	-----
Q025	-----	-----	0.044	-----	-----

CASE ---------- RUN SERIES 23, LOG 23.4

GIMBAL PATTERN --- 11 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD ON ENGINE NO 4 AT 6 DEGREES
NOTE THAT ALL THE HEATING RATES ON RUN 697 ARE LOW IN COMPARISON WITH OTHER RUNS

NORMALIZED TEST DATA

RUN NUMBER	694	695	696	697	698	699
PC (PSIA)	727.0	722.0	722.0	725.0	711.0	710.0
ALT (MU HG A)	27.0	28.0	23.0	27.0	27.0	29.0
PO2 (PSIA)	1235.0	1235.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1285.0	1285.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	162.0	158.0	160.0	160.0	160.0	160.0
TH2 (F)	153.0	158.0	158.0	160.0	160.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
P005	-----	-----	-----	-----	0.070	-----
QK01	-----	84.500	97.500	61.900	90.200	76.000
QK02	28.800	24.800	29.300	23.500	28.700	23.000
QK03	9.050	7.700	8.100	4.400	6.800	6.000
QK04	2.920	2.600	2.700	1.700	2.200	1.800
QK05	1.380	1.300	1.400	1.300	-----	1.200
QL01	24.100	22.300	24.800	19.900	24.600	22.200
QL02	14.900	14.200	14.900	11.000	13.400	13.300
QL03	6.000	5.300	5.300	3.700	4.800	4.100
QL04	2.300	2.000	2.100	1.600	1.900	1.700
QL05	1.380	1.200	1.900	1.100	0.970	1.100
QM01	4.860	4.200	5.800	3.800	5.800	4.500
QM02	4.820	4.800	5.500	4.000	5.300	4.600
QM03	3.350	3.300	3.400	2.700	3.300	3.100
QM04	2.360	2.400	2.300	1.800	2.400	2.000
QM05	1.770	1.900	1.500	1.400	1.600	1.300
Q008	5.500	6.300	12.400	5.800	6.000	6.500
Q009	7.200	9.400	7.500	-----	7.000	-----
Q010	12.100	9.000	10.700	10.600	12.700	10.100

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.4

GIMBAL PATTERN --- 11 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE INBOARD ON ENGINE NO 4 AT 6 DEGREES
NOTE THAT ALL THE HEATING RATES ON RUN 697 ARE LOW IN COMPARISON WITH OTHER RUNS

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	694	695	696	697	698	699
PC (PSIA)	727.0	722.0	722.0	725.0	711.0	710.0
ALT (MU HG A)	27.0	28.0	23.0	27.0	27.0	29.0
PO2 (PSIA)	1235.0	1235.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1285.0	1285.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	162.0	158.0	160.0	160.0	160.0	160.0
TH2 (F)	153.0	158.0	158.0	160.0	160.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
Q011	12.200	12.600	12.500	10.700	-----	12.300
Q013	14.900	16.200	16.300	12.300	12.700	13.400
Q014	26.400	20.300	26.600	23.100	27.600	22.000
Q015	11.800	17.600	18.700	15.100	14.600	16.600
Q016	6.300	6.700	7.400	6.900	7.000	7.400
Q017	2.460	1.400	1.500	2.000	2.500	2.300
Q025	0.030	0.158	0.216	0.187	0.181	0.208

CASE ---------- RUN SERIES 23, LOG 23.5

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH TRANSIENT GIMBAL PATTERN DURING SEPARATION

NORMALIZED TEST DATA

RUN NUMBER	677	678	679
PC (PSIA)	722.0	706.0	719.0
ALT (MU HG A)	25.0	25.0	26.0
PO2 (PSIA)	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0
TO2 (F)	137.0	150.0	153.0
TH2 (F)	137.0	156.0	153.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER OUTPUT
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA

TRANSDUCER ID			
P005	0.039	0.042	0.037
P022	3.530	3.820	3.580
P023	3.910	4.140	3.820
QK01	28.900	-----	34.900
QK02	19.600	-----	17.500
QK03	8.100	8.910	8.060
QK04	3.640	3.820	3.400
QK05	-----	2.080	1.870
QL02	11.400	-----	11.200
QL03	6.790	7.000	6.450
QL04	3.250	3.260	3.090
QL05	2.090	2.020	2.050
QM01	6.550	5.800	6.050
QM02	4.090	4.210	4.160
QM03	3.700	4.050	4.500
QM04	2.430	2.120	2.230
QM05	2.050	2.240	2.210
Q008	2.160	2.660	1.760
Q010	3.410	2.380	3.740

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.5

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH TRANSIENT GIMBAL PATTERN DURING SEPARATION

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	677	678	679
PC (PSIA)	722.0	706.0	719.0
ALT (MU HG A)	25.0	25.0	26.0
PO2 (PSIA)	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0
TO2 (F)	137.0	150.0	153.0
TH2 (F)	137.0	156.0	153.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA		
Q014	11.000	13.000	10.800
Q015	4.280	6.300	4.650
Q016	5.140	4.370	4.350
Q025	0.095	0.084	0.078
Q062	-----	177.000	192.000
Q063	195.000	200.000	199.000

CASE ---------- RUN SERIES 23, LOG 23.6

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 465.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEG AND LOW PC OF 465 PSIA

NORMALIZED TEST DATA

RUN NUMBER	680	681	682	683	684	685	686	687	688
PC (PSIA)	485.0	465.0	472.0	431.0	451.0	455.0	474.0	470.0	474.0
ALT (MU HG A)	22.0	27.0	18.0	28.0	24.0	25.0	24.0	27.0	24.0
PO2 (PSIA)	1250.0	1250.0	1250.0	1135.0	1235.0	1235.0	1235.0	1235.0	1235.0
PH2 (PSIA)	1250.0	1250.0	1250.0	1080.0	1180.0	1180.0	1180.0	1180.0	1180.0
TO2 (F)	156.0	155.0	156.0	150.0	153.0	153.0	157.0	155.0	143.0
TH2 (F)	156.0	146.0	153.0	143.0	148.0	156.0	163.0	158.0	156.0
DO2 (IN)	0.319	0.319	0.319	0.319	0.319	0.319	0.319	0.319	0.319
DH2 (IN)	0.272	0.272	0.272	0.272	0.272	0.272	0.272	0.272	0.272
TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
P005	0.026	0.032	-----	-----	-----	0.035	0.032	0.031	0.030
P022	2.200	2.760	1.920	2.360	2.270	2.390	2.150	-----	2.430
P023	2.290	2.200	2.010	2.260	2.520	2.380	2.400	2.310	2.500
QK01	25.600	24.700	26.900	24.400	27.200	27.900	23.500	25.000	22.500
QK02	12.900	14.800	14.000	13.000	15.200	14.200	13.100	13.600	11.100
QK03	5.880	6.390	6.200	5.700	-----	-----	-----	-----	-----
QK04	2.650	2.650	2.560	2.370	-----	2.660	2.360	2.670	2.160
QK05	1.200	1.450	1.280	1.400	1.540	1.430	1.280	1.380	1.280
QL02	9.120	8.390	8.470	7.950	8.960	9.560	7.560	8.900	7.810
QL03	4.800	4.520	4.630	4.200	5.000	4.800	3.930	4.950	4.130
QL04	2.400	1.220	2.070	2.040	2.470	2.250	1.960	2.280	1.960
QL05	1.420	1.480	1.380	1.400	1.540	1.430	1.280	-----	1.280
QM01	4.200	3.490	4.140	5.490	4.840	4.600	3.140	3.460	3.630
QM02	2.970	2.900	3.050	1.940	3.190	3.370	2.550	2.870	2.460
QM03	3.130	2.850	2.560	2.580	2.980	2.860	2.360	2.670	2.260
QM04	1.760	1.880	1.770	1.830	1.750	1.940	1.670	1.880	1.570
QM05	1.670	1.660	1.670	1.610	1.650	1.330	1.470	1.680	1.570
Q008	1.770	-----	1.770	1.620	1.340	1.530	1.470	1.880	1.580
Q010	2.140	-----	1.870	1.830	1.650	-----	1.670	1.680	1.960

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.6

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 465.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEG AND LOW PC OF 465 PSIA

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	680	681	682	683	684	685	686	687	688
PC (PSIA)	485.0	465.0	472.0	431.0	451.0	455.0	474.0	470.0	474.0
ALT (MU HG A)	22.0	27.0	18.0	28.0	24.0	25.0	24.0	27.0	24.0
PO2 (PSIA)	1250.0	1250.0	1250.0	1135.0	1235.0	1235.0	1235.0	1235.0	1235.0
PH2 (PSIA)	1250.0	1250.0	1250.0	1080.0	1180.0	1180.0	1180.0	1180.0	1180.0
TO2 (F)	156.0	155.0	156.0	150.0	153.0	153.0	157.0	155.0	143.0
TH2 (F)	156.0	146.0	153.0	143.0	148.0	156.0	163.0	158.0	156.0
DO2 (IN)	0.319	0.319	0.319	0.319	0.319	0.319	0.319	0.319	0.319
DH2 (IN)	0.272	0.272	0.272	0.272	0.272	0.272	0.272	0.272	0.272

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA								
Q014	9.160	5.920	10.500	7.420	8.550	9.800	7.080	7.420	8.050
Q015	3.280	-----	3.250	3.010	2.570	3.170	3.240	3.260	3.340
Q016	3.830	3.410	4.140	2.900	2.680	4.200	3.340	3.360	3.340
Q025	0.088	0.037	0.039	0.043	0.038	-----	0.063	-----	0.034
Q062	131.000	126.000	116.000	142.000	143.000	147.000	132.000	151.000	150.000
Q063	136.000	141.000	125.000	149.000	147.000	163.000	153.000	158.000	144.000

CASE ---------- RUN SERIES 23, LOG 23.7

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 215.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEGREES INBOARD AND NOMINAL CHAMBER PRESSURE OF 215 PSIA

NORMALIZED TEST DATA

RUN NUMBER	689	690	691	692	693
PC (PSIA)	203.0	214.0	216.0	225.0	220.0
ALT (MU HG A)	27.0	26.0	20.0	25.0	17.0
PO2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0
PH2 (PSIA)	1245.0	1245.0	1245.0	1245.0	1245.0
TO2 (F)	156.0	158.0	154.0	160.0	158.0
TH2 (F)	158.0	158.0	153.0	150.0	158.0
DO2 (IN)	0.202	0.202	0.202	0.202	0.202
DH2 (IN)	0.167	0.167	0.167	0.167	0.167

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	0.017	0.016	0.014	0.018	0.017
P022	1.120	1.110	1.650	1.000	0.900
P023	1.120	1.220	1.230	1.220	1.020
QK01	12.700	13.700	12.900	13.000	13.300
QK02	7.100	6.400	6.300	6.020	6.650
QK03	-----	-----	2.700	2.290	2.830
QK04	1.480	1.130	1.100	1.050	1.170
QK05	0.740	0.700	0.700	0.570	0.690
QL01	-----	6.300	6.300	5.830	5.850
QL02	4.350	4.500	4.400	4.010	4.300
QL03	2.540	2.840	2.400	-----	2.440
QL04	1.160	1.350	1.400	-----	1.170
QL05	0.740	0.950	1.000	-----	0.880
QM01	1.480	2.300	0.790	0.670	0.780
QM02	1.380	0.700	1.300	1.240	1.370
QM03	1.380	1.300	1.300	1.150	1.170
QM04	0.850	-----	-----	0.860	0.880
QM05	0.420	0.750	0.700	0.670	0.680
Q008	0.950	0.800	0.900	0.860	0.780

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 23, LOG 23.7

GIMBAL PATTERN --- 12 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 215.0 PSIA INTERSTAGE ------- OFF

REMARKS: CENTER ENGINE NOZZLE WALL ENVIRONMENT WITH DUAL ACTUATOR FAILURE AT 5 DEGREES INBOARD AND NOMINAL CHAMBER PRESSURE OF 215 PSIA

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	689	690	691	692	693
PC (PSIA)	203.0	214.0	216.0	225.0	220.0
ALT (MU HG A)	27.0	26.0	20.0	25.0	17.0
PO2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0
PH2 (PSIA)	1245.0	1245.0	1245.0	1245.0	1245.0
TO2 (F)	156.0	158.0	154.0	160.0	158.0
TH2 (F)	158.0	158.0	153.0	150.0	158.0
DO2 (IN)	0.202	0.202	0.202	0.202	0.202
DH2 (IN)	0.167	0.167	0.167	0.167	0.167

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
Q010	0.950	0.700	0.800	0.860	0.780
Q014	3.140	2.700	2.200	2.200	2.540
Q015	2.010	1.900	2.300	2.490	2.150
Q016	2.540	1.200	1.500	1.430	1.270
Q025	0.016	0.014	0.015	-----	0.013
Q062	-----	85.000	93.000	93.000	88.000
Q063	84.000	81.000	80.000	77.000	75.000

CASE ---------- RUN SERIES 24, LOG 24.1.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: TO DETERMINE THRUST CONE RADIATIVE HEATING.
FLOW-SYMMETRY NOZZLES USED IN THIS TEST
P20,21 ENGINE NO 1, P22,23 ENGINE NO 2, P29 ENGINE NO 5

NORMALIZED TEST DATA

RUN NUMBER	614	615	616
PC (PSIA)	739.0	699.0	722.0
ALT (MU HG A)	25.0	27.0	26.0
PO2 (PSIA)	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0
TO2 (F)	157.0	160.0	160.0
TH2 (F)	158.0	158.0	164.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER OUTPUT
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA

TRANSDUCER ID			
P020	3.843	3.976	3.933
P021	3.924	4.034	3.961
P022	4.941	4.374	4.402
P023	4.200	4.149	4.355
P029	4.586	4.389	4.176
Q022	0.011	0.014	0.007
Q023	0.054	0.078	0.070
Q024	0.110	0.128	0.102
Q024R	-----	0.010	0.001
Q025	0.227	0.215	0.206
Q030	0.020	-----	0.011
Q031	0.041	0.042	0.050
Q032	0.074	0.078	0.058
Q033	0.015	0.000	0.030
Q044	0.134	0.153	0.132

CASE ---------- RUN SERIES 25, LOG 25.1

GIMBAL PATTERN --- 3C MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: HEAT SHIELD PRESSURES WITH ENGINE DEFLECTIONS.
DEFLECTION PATTERN ROTATED 180 DEGREES

NORMALIZED TEST DATA

RUN NUMBER	617	618	619
PC (PSIA)	720.0	705.0	-----
ALT (MU HG A)	14.0	30.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0
TO2 (F)	160.0	161.0	160.0
TH2 (F)	160.0	160.0	158.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT PSIA		
P001	0.058	0.065	0.075
P002	0.059	0.054	-----
P003	0.093	0.106	0.083
P005	0.070	-----	0.060
P006	0.072	0.052	0.065
P007	0.036	0.034	0.034
P008	0.031	0.035	-----
P011	0.065	0.071	0.063

CASE ---------- RUN SERIES 25, LOG 25.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: HEAT SHIELD PRESSURES WITH ENGINE DEFLECTIONS.
DEFLECTION PATTERN ROTATED 180 DEGREES

NORMALIZED TEST DATA

RUN NUMBER	620	621	622
PC (PSIA)	722.0	-----	-----
ALT (MU HG A)	27.0	26.0	27.0
PO2 (PSIA)	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0
TO2 (F)	157.0	162.0	160.0
TH2 (F)	160.0	163.0	157.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT PSIA		
P001	-----	-----	0.044
P002	0.051	0.046	0.052
P003	0.039	0.041	0.035
P005	0.039	0.035	0.036
P006	0.032	0.033	0.035
P007	0.049	0.052	0.033
P008	0.031	0.030	0.031
P011	-----	-----	0.035

CASE ---------- RUN SERIES 26, LOG 26.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE HEATING RATES
SKIRT GAGES MOUNTED ON ENGINE NO 5

NORMALIZED TEST DATA

RUN NUMBER	630	631	632	633	634	635
PC (PSIA)	719.0	701.0	-----	702.0	-----	-----
ALT (MU HG A)	27.0	27.0	26.0	27.0	27.0	30.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	160.0	153.0	159.0	160.0	157.0	151.0
TH2 (F)	160.0	157.0	158.0	155.0	153.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
P005	-----	0.030	0.032	0.030	0.029	0.025
P006	0.017	-----	-----	0.025	0.021	0.023
QK01	1.290	1.300	1.637	1.320	1.962	2.277
QK02	2.000	1.750	1.532	0.896	1.150	2.570
QK03	2.280	-----	-----	-----	2.024	2.037
QK04	1.810	-----	-----	-----	1.776	1.474
QK05	1.030	1.690	-----	1.240	1.561	2.214
QK06	1.200	0.973	-----	1.180	-----	0.913
QL01	1.300	0.723	-----	-----	0.834	-----
QL02	0.873	0.674	-----	-----	-----	-----
QL03	1.520	1.320	1.770	1.770	-----	1.366
QL04	-----	1.290	1.920	1.710	1.257	1.820
QL05	1.050	1.020	-----	2.080	1.840	0.952
QL06	1.130	0.975	-----	1.100	-----	1.037
QM01	2.000	-----	2.040	3.090	1.608	1.686
QM02	1.850	0.615	2.881	-----	2.303	2.480
QM03	3.930	0.970	4.100	4.100	2.410	4.000
QM04	-----	-----	-----	-----	-----	3.060
QM05	2.930	0.806	-----	2.380	3.120	2.674

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 26, LOG 26.1

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE HEATING RATES
SKIRT GAGES MOUNTED ON ENGINE NO 5

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	630	631	632	633	634	635
PC (PSIA)	719.0	701.0	-----	702.0	-----	-----
ALT (MU HG A)	27.0	27.0	26.0	27.0	27.0	30.0
PO2 (PSIA)	1270.0	1270.0	1270.0	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0	1220.0	1220.0	1220.0
TO2 (F)	160.0	153.0	159.0	160.0	157.0	151.0
TH2 (F)	160.0	157.0	158.0	155.0	153.0	162.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA					
QM06	2.470	0.875	-----	1.940	-----	2.189
Q003	4.600	-----	-----	-----	-----	-----
Q004	5.650	-----	-----	-----	-----	-----
Q008	5.730	-----	-----	-----	-----	-----
Q016	2.680	-----	-----	-----	-----	-----
Q017	2.220	-----	-----	-----	-----	-----
Q025	0.140	-----	-----	-----	-----	-----

CASE ---------- RUN SERIES 26, LOG 26.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE WALL HEATING RATES.
SKIRT GAGES MOUNTED ON NO 4 ENGINE

NORMALIZED TEST DATA

RUN NUMBER	636	637	638	639	640
PC (PSIA)	712.0	712.0	729.0	712.0	722.0
ALT (MU HG A)	30.0	25.0	26.0	25.0	36.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	158.0	160.0	160.0	159.0	150.0
TH2 (F)	162.0	160.0	160.0	160.0	151.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	0.031	0.035	0.064	-----	-----
P006	0.027	0.027	0.027	0.047	0.028
QK01	0.697	0.845	0.898	0.573	0.990
QK02	0.735	0.717	0.990	0.735	0.900
QK03	0.793	0.588	-----	0.644	0.862
QK04	0.826	0.681	-----	0.696	0.940
QK05	1.450	1.470	1.345	-----	1.200
QK06	0.841	0.695	0.860	0.797	0.990
QL01	-----	0.387	-----	0.439	-----
QL02	-----	0.656	-----	0.663	0.660
QL03	1.140	0.983	0.536	-----	0.635
QL04	1.040	0.942	0.757	0.844	-----
QL05	1.130	0.955	0.485	0.772	0.610
QL06	1.230	1.020	0.418	0.573	0.477
QM01	0.506	0.494	0.435	0.495	0.470
QM02	1.010	1.050	0.620	1.090	0.803
QM03	2.010	1.770	1.030	1.030	1.250
QM04	1.650	1.740	-----	1.420	1.340
QM05	1.370	1.785	0.723	1.280	1.050

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 26, LOG 26.2

GIMBAL PATTERN --- NO DEFLECTION MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: NULL NOZZLE WALL HEATING RATES.
SKIRT GAGES MOUNTED ON NO 4 ENGINE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	636	637	638	639	640
PC (PSIA)	712.0	712.0	729.0	712.0	722.0
ALT (MU HG A)	30.0	25.0	26.0	25.0	36.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0	1235.0
TO2 (F)	158.0	160.0	160.0	159.0	150.0
TH2 (F)	162.0	160.0	160.0	160.0	151.0
DO2 (IN)	0.398	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
QM06	1.370	1.340	0.730	1.110	0.920
Q003	6.270	5.080	6.200	4.430	4.360
Q004	6.210	5.650	5.610	5.020	4.950
Q008	5.470	-----	-----	6.370	-----
Q009	-----	-----	5.200	6.500	7.200
Q010	3.560	4.680	2.420	4.060	4.190
Q014	1.700	1.730	2.070	1.945	2.330
Q025	0.160	0.133	0.172	0.204	0.193

CASE ---------- RUN SERIES 27, LOG 27.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NOZZLE ENVIRONMENT WITH ACTUATOR FAILURES INBOARD.
SKIRT GAGES MOUNTED ON ENGINE NO 4.

NORMALIZED TEST DATA

RUN NUMBER	641	642	643
PC (PSIA)	712.0	724.0	691.0
ALT (MU HG A)	30.0	28.0	32.0
PO2 (PSIA)	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0
TO2 (F)	142.0	150.0	153.0
TH2 (F)	153.0	153.0	153.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA		
P005	0.031	0.032	0.029
P006	0.029	0.029	0.032
QK01	0.735	0.985	0.953
QK02	0.684	0.675	1.100
QK03	0.760	0.517	0.900
QK04	0.772	0.595	0.967
QK05	0.860	0.742	1.240
QK06	0.940	0.875	1.380
QL02	0.665	0.650	0.563
QL03	0.780	0.706	0.720
QL04	0.895	0.870	-----
QL05	0.830	0.790	0.750
QL06	0.940	0.885	0.850
QM01	0.590	0.550	0.450
QM02	1.200	1.310	1.120
QM03	1.800	1.970	1.480
QM04	1.710	1.910	1.610
QM05	1.510	1.620	1.380
QM06	-----	1.414	1.370

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.1

GIMBAL PATTERN --- 8 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NOZZLE ENVIRONMENT WITH ACTUATOR FAILURES INBOARD. SKIRT GAGES MOUNTED ON ENGINE NO 4.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	641	642	643
PC (PSIA)	712.0	724.0	691.0
ALT (MU HG A)	30.0	28.0	32.0
PO2 (PSIA)	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0
TO2 (F)	142.0	150.0	153.0
TH2 (F)	153.0	153.0	153.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA		
Q003	7.280	6.350	6.870
Q004	6.450	5.920	6.700
Q008	8.150	4.230	8.920
Q009	7.240	7.730	-----
Q010	2.250	3.160	-----
Q014	2.010	1.760	-----
Q025	0.150	0.267	0.181

CASE ---------- RUN SERIES 27, LOG 27.2.1

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 4 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

NORMALIZED TEST DATA

RUN NUMBER	644	645	646
PC (PSIA)	718.0	691.0	705.0
ALT (MU HG A)	27.0	27.0	30.0
PO2 (PSIA)	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0
TO2 (F)	140.0	157.0	151.0
TH2 (F)	147.0	156.0	151.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA		
P005	0.034	0.035	0.035
P006	0.030	0.033	0.033
QK01	1.260	0.970	0.990
QK02	1.380	-----	0.880
QK03	1.230	-----	0.900
QK04	1.270	-----	0.970
QK05	1.530	1.420	1.260
QK06	1.340	1.280	1.450
QL02	0.750	0.620	0.630
QL03	0.790	-----	0.630
QL04	0.910	0.500	0.790
QL05	0.840	1.490	0.850
QL06	1.040	1.020	0.970
QM01	0.310	0.460	0.240
QM02	0.460	0.960	0.920
QM03	0.830	1.430	1.330
QM04	1.020	1.440	1.290
QM05	0.860	1.220	1.230
QM06	-----	1.180	1.040

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.2.1

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 4 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	644	645	646
PC (PSIA)	718.0	691.0	705.0
ALT (MU HG A)	27.0	27.0	30.0
PO2 (PSIA)	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0
TO2 (F)	140.0	157.0	151.0
TH2 (F)	147.0	156.0	151.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER OUTPUT
(Q) IN BTU/SQ-FT-SEC, (P) IN PSIA

TRANSDUCER ID			
Q003	7.550	-----	7.900
Q004	5.300	7.420	7.140
Q008	-----	12.200	11.000
Q009	8.740	11.500	9.750
Q010	2.420	2.490	2.190
Q014	-----	5.460	4.730
Q025	0.179	0.212	0.230

CASE ---------- RUN SERIES 27, LOG 27.2.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 1 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

NORMALIZED TEST DATA

RUN NUMBER	647	648	649
PC (PSIA)	696.0	648.0	649.0
ALT (MU HG A)	27.0	29.0	31.0
PO2 (PSIA)	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0
TO2 (F)	159.0	153.0	156.0
TH2 (F)	158.0	153.0	152.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA		
P005	-----	0.035	0.041
P006	0.030	0.029	0.033
P006	0.030	0.029	0.033
QK01	1.410	1.330	1.360
QK02	1.610	1.510	1.700
QK03	1.150	1.360	1.340
QK04	1.160	1.410	1.330
QK05	1.310	1.600	-----
QK06	1.740	1.860	-----
QL03	-----	4.590	4.280
QL04	-----	4.530	4.300
QL05	-----	4.260	3.810
QL06	-----	3.300	3.120
QM01	0.980	0.960	-----
QM02	2.180	1.870	2.560
QM03	2.620	3.220	3.520
QM04	2.960	3.560	2.990
QM05	-----	4.230	-----
QM06	-----	3.490	4.000

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.2.2

GIMBAL PATTERN --- 6A MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE NO 1 NOZZLE ENVIRONMENT WITH 3 DEGREE ACTUATOR FAILURE ON NO 4 ENGINE

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	647	648	649
PC (PSIA)	696.0	648.0	649.0
ALT (MU HG A)	27.0	29.0	31.0
PO2 (PSIA)	1270.0	1270.0	1270.0
PH2 (PSIA)	1220.0	1220.0	1220.0
TO2 (F)	159.0	153.0	156.0
TH2 (F)	158.0	153.0	152.0
DO2 (IN)	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA		
Q010	4.020	-----	3.720
Q013	5.420	4.790	5.440
Q014	2.080	3.510	2.760
Q015	4.850	6.300	7.850
Q019	2.690	3.620	3.480
Q025	0.089	0.065	0.089

CASE ---------- RUN SERIES 27, LOG 27.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE WALL ENVIRONMENT WITH ACTUATOR FAILURES.
SKIRT GAGES ON NOZZLE 4.

NORMALIZED TEST DATA

RUN NUMBER	661	662	663	664
PC (PSIA)	694.0	748.0	738.0	743.0
ALT (MU HG A)	13.0	23.0	28.0	25.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0
TO2 (F)	148.0	156.0	151.0	137.0
TH2 (F)	155.0	153.0	155.0	146.0
DO2 (IN)	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
P005	0.093	0.032	0.027	0.034
P006	-----	0.038	0.027	0.045
QK01	1.220	0.364	0.600	0.890
QK02	1.390	1.396	0.530	0.900
QK03	1.280	0.373	0.800	0.515
QK04	1.070	0.460	0.850	0.510
QK05	1.390	0.700	1.340	0.850
QK06	-----	0.860	0.510	0.915
QL02	1.340	0.575	0.620	0.462
QL03	1.090	0.630	0.407	0.500
QL04	1.050	-----	0.660	0.693
QL05	1.260	0.920	0.835	0.810
QL06	0.835	1.310	0.835	1.020
QM01	0.680	0.370	0.327	1.170
QM02	0.970	1.570	1.020	0.400
QM03	1.590	1.770	1.730	1.650
QM04	2.500	1.630	1.350	1.357
QM05	-----	1.150	1.500	1.280
QM06	-----	1.340	1.150	-----

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 27, LOG 27.3

GIMBAL PATTERN --- 10 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: OUTBOARD ENGINE WALL ENVIRONMENT WITH ACTUATOR FAILURES.
SKIRT GAGES ON NOZZLE 4.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	661	662	663	664
PC (PSIA)	694.0	748.0	738.0	743.0
ALT (MU HG A)	13.0	23.0	28.0	25.0
PO2 (PSIA)	1285.0	1285.0	1285.0	1285.0
PH2 (PSIA)	1235.0	1235.0	1235.0	1235.0
TO2 (F)	148.0	156.0	151.0	137.0
TH2 (F)	155.0	153.0	155.0	146.0
DO2 (IN)	0.398	0.398	0.398	0.398
DH2 (IN)	0.335	0.335	0.335	0.335

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA			
Q003	-----	3.200	4.700	6.050
Q004	3.860	6.000	7.100	6.850
Q008	3.810	4.080	7.100	-----
Q009	-----	6.900	7.450	6.850
Q010	2.630	3.400	4.050	-----
Q014	2.100	1.420	2.060	2.000
Q025	0.235	-----	0.044	-----

CASE ---------- RUN SERIES 28, LOG 28.1

GIMBAL PATTERN --- 28 MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: ENVIRONMENT OF THE INOPERATIVE OUTBOARD ENGINE WITH THE INOPERATIVE ENGINE DEFLECTED. DOUBTFUL WHETHER ENGINE WAS DEFLECTED DURING THE TEST.

NORMALIZED TEST DATA

RUN NUMBER	672	673	674	675	676
PC (PSIA)	734.0	686.0	726.0	726.0	726.0
ALT (MU HG A)	25.0	26.0	25.0	27.0	25.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	148.0	153.0	156.0	143.0	153.0
TH2 (F)	150.0	150.0	156.0	156.0	156.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
P005	0.013	-----	0.010	0.010	-----
P006	0.011	-----	0.039	-----	0.009
QK01	-----	0.540	0.490	0.490	0.510
QK02	-----	0.650	0.490	-----	0.550
QK03	0.370	0.610	0.560	0.430	0.400
QK04	0.360	0.660	0.470	0.370	0.340
QK05	0.450	0.600	0.630	0.390	-----
QK06	0.580	0.680	0.740	0.430	-----
QL02	0.390	0.500	-----	0.280	0.530
QL03	0.490	0.760	0.560	0.470	0.610
QL04	0.420	0.800	0.480	0.480	0.350
QL05	0.590	0.850	0.870	0.390	0.520
QL06	0.690	1.180	0.770	0.480	0.800
QM01	0.170	0.230	0.320	0.300	0.310
QM02	0.220	0.270	0.300	0.085	0.320
QM03	0.300	0.340	0.290	0.300	0.300
QM04	0.320	0.340	0.315	0.300	0.350
QM05	0.440	0.460	0.330	0.350	0.340
QM06	0.430	0.520	0.360	0.410	0.390

(TABLE CONTINUED ON THE NEXT PAGE)

CASE ---------- RUN SERIES 28, LOG 28.1

GIMBAL PATTERN --- 2B MIXTURE RATIO ---- 5.50
NOMINAL PC ------- 715.0 PSIA INTERSTAGE ------- OFF

REMARKS: ENVIRONMENT OF THE INOPERATIVE OUTBOARD ENGINE WITH THE INOPERATIVE ENGINE DEFLECTED. DOUBTFUL WHETHER ENGINE WAS DEFLECTED DURING THE TEST.

NORMALIZED TEST DATA

(CONTINUED FROM PRECEDING PAGE)

RUN NUMBER	672	673	674	675	676
PC (PSIA)	734.0	686.0	726.0	726.0	726.0
ALT (MU HG A)	25.0	26.0	25.0	27.0	25.0
PO2 (PSIA)	1260.0	1260.0	1260.0	1260.0	1260.0
PH2 (PSIA)	1345.0	1345.0	1345.0	1345.0	1345.0
TO2 (F)	148.0	153.0	156.0	143.0	153.0
TH2 (F)	150.0	150.0	156.0	156.0	156.0
DO2 (IN)	0.361	0.361	0.361	0.361	0.361
DH2 (IN)	0.291	0.291	0.291	0.291	0.291

TRANSDUCER ID	TRANSDUCER OUTPUT (Q) IN BTU/SQ-FT-SEC, (P) IN PSIA				
QN01	-----	-----	-----	-----	0.015
QN03	-----	-----	0.038	0.037	0.038
Q009	7.400	8.300	6.070	6.700	6.610
Q015	-----	5.160	6.620	7.950	-----
Q025	-----	-----	-----	0.018	-----

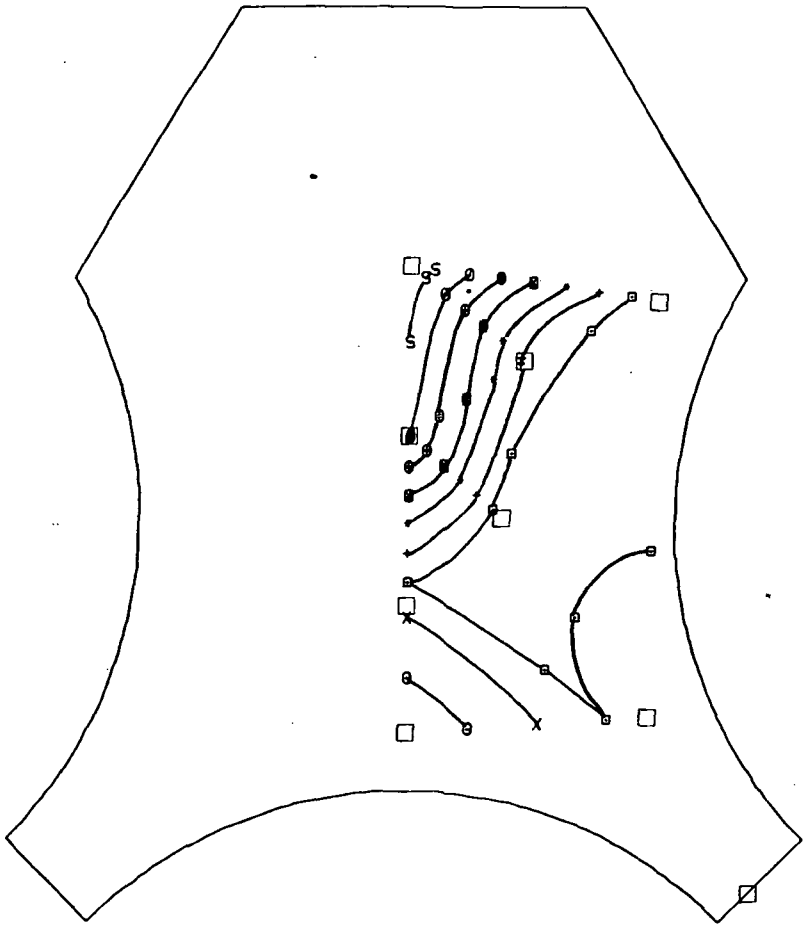
4.0 HEAT SHIELD CONSTANT HEATING RATE CONTOURS

Constant heating rate contours to the heat shield are presented in this section. The contours represent the mean + 3σ values tabulated in Section 3.0. Linear interpolation, between the gage locations indicated, was used to obtain the constant heating rate contours.

Contours were plotted only for the test cases where sufficient heat shield instrumentation was recorded. The units of the heating rates are BTU/ft^2 - sec.

RUN SERIES 1. LOG 1.5 MEAN + 3 SIGMA

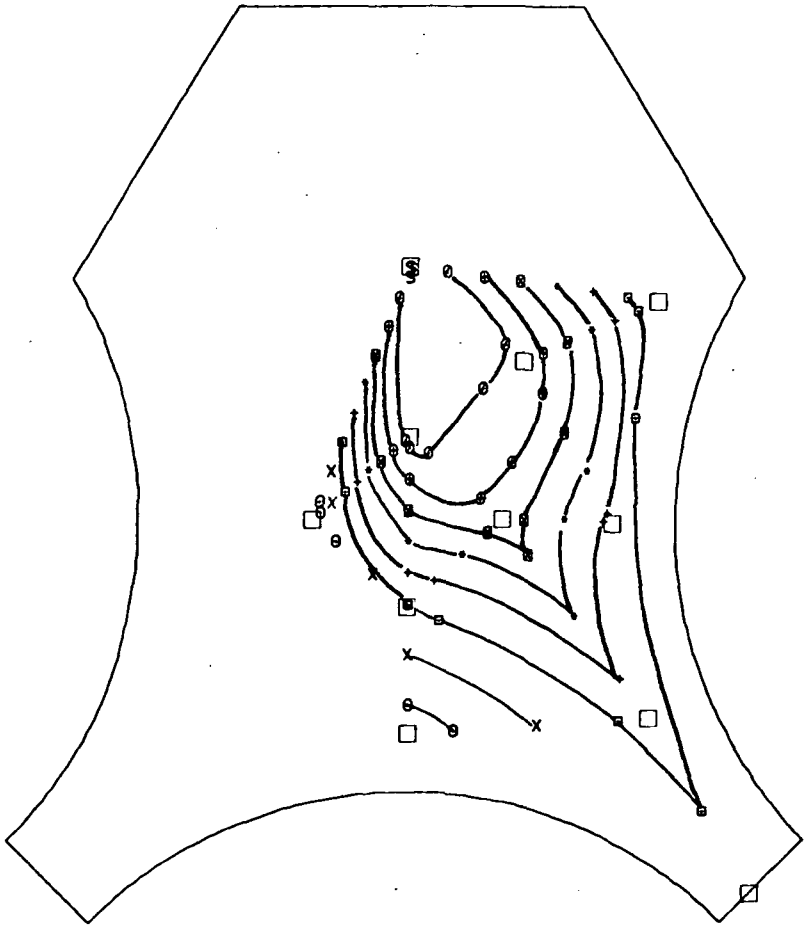
NO DEFLECTIONS
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	1.5	■	4.0
X	2.0	●	4.5
⊡	2.5	Ø	5.0
+	3.0	S	5.5
•	3.5		

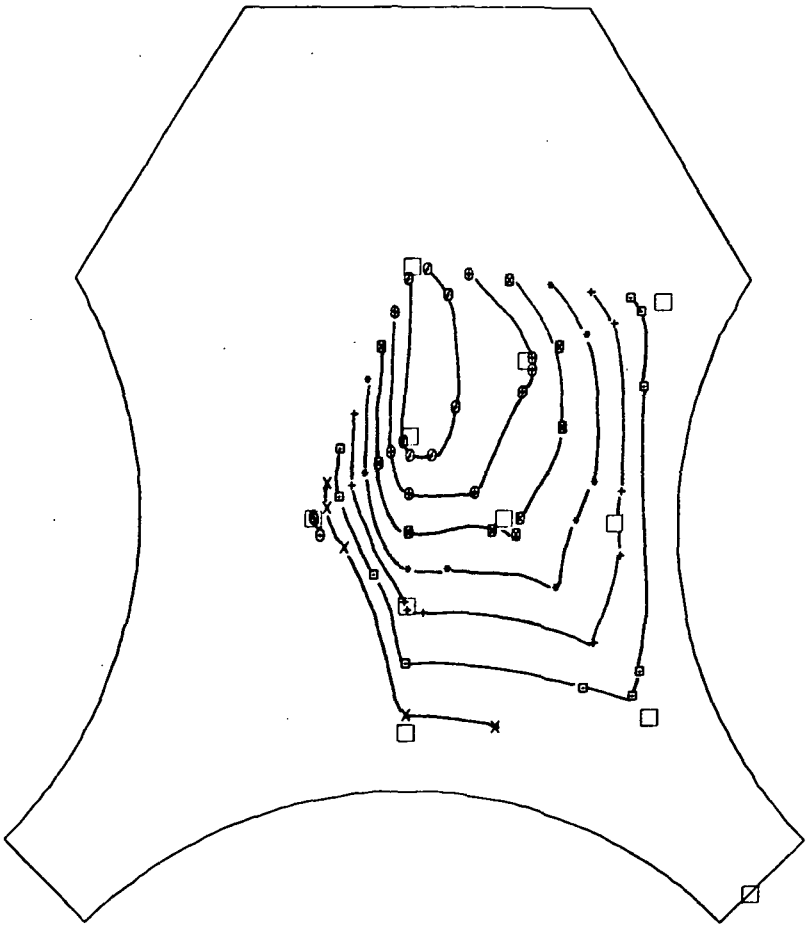
NO DEFLECTIONS
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	2.5	■	5.0
X	3.0	●	5.5
⊡	3.5	⊕	6.0
+	4.0	S	6.5
•	4.5		

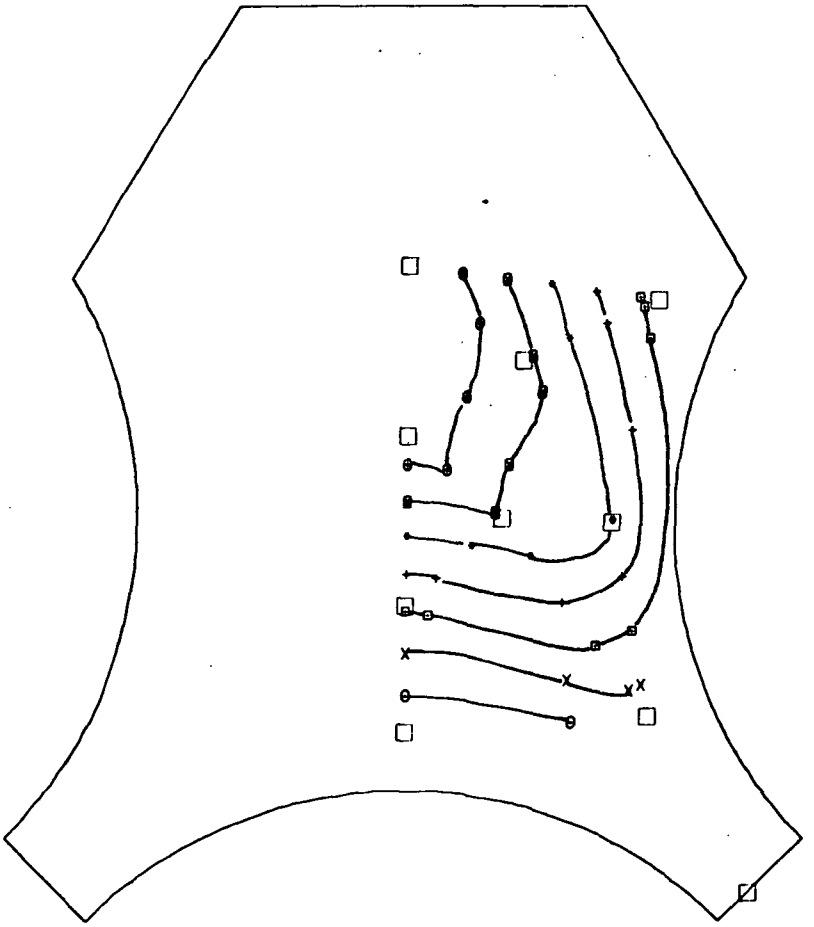
NO DEFLECTIONS
O/F = 4.50
Pc = 546 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	1.5	■	4.0
X	2.0	●	4.5
⊠	2.5	0	5.0
+	3.0		
•	3.5		

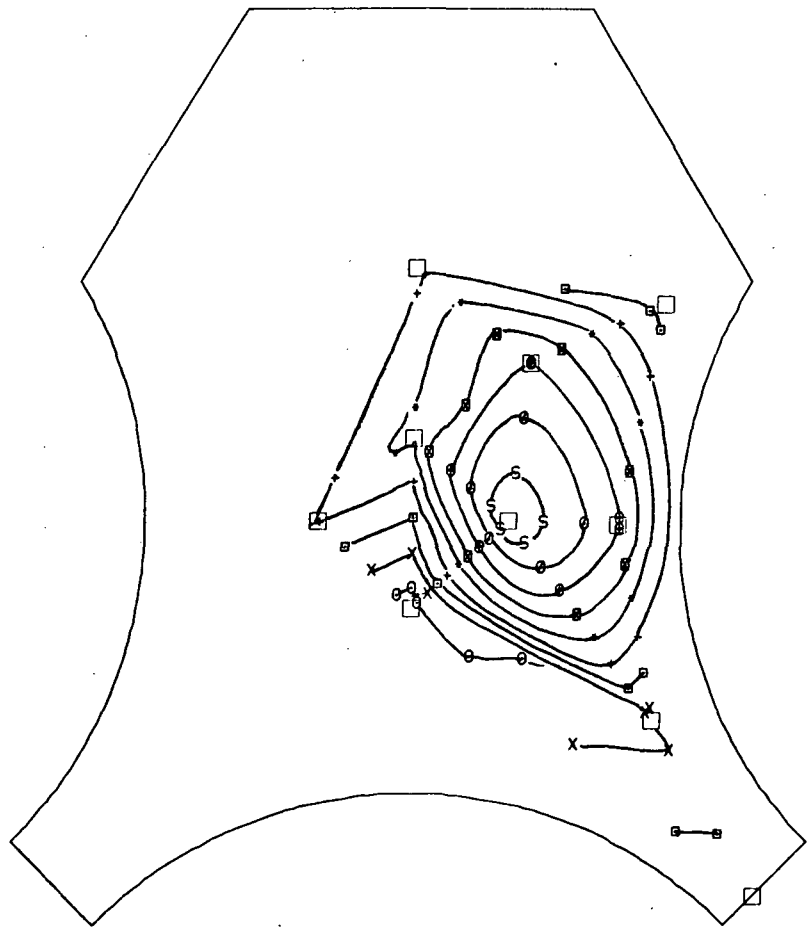
NO DEFLECTIONS
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE ON



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	3.0	■	5.5
X	3.5	●	6.0
⊡	4.0		
+	4.5		
•	5.0		

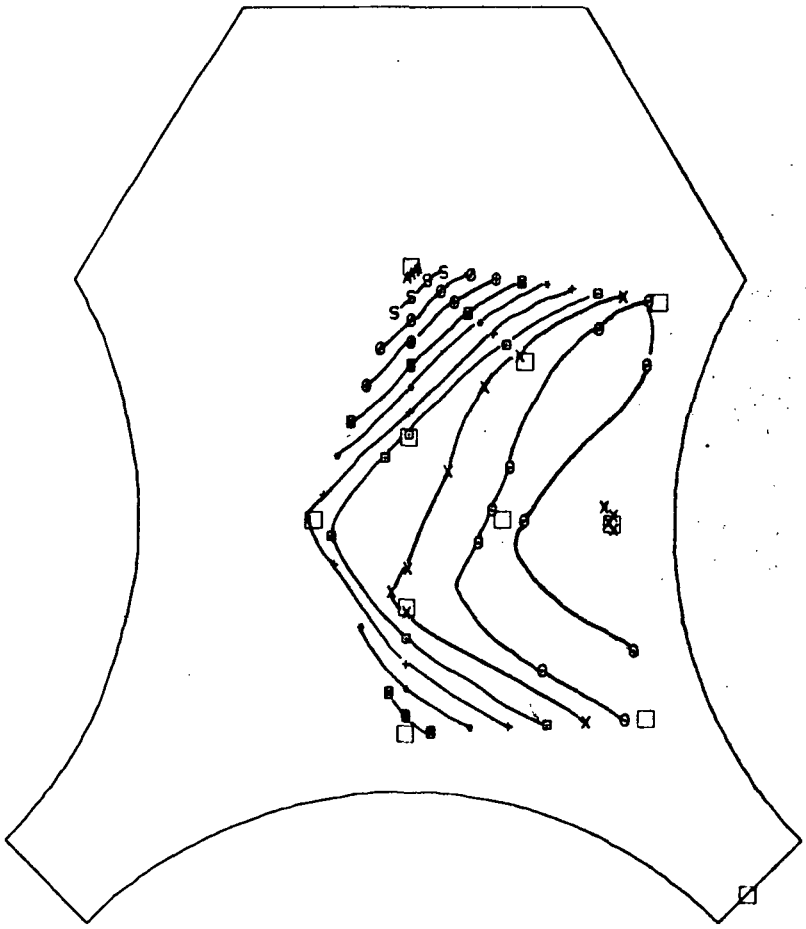
GIMBAL PATTERN 3C
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	5.0	■	10.0
X	6.0	●	11.0
■	7.0	@	12.0
+	8.0	S	13.0
•	9.0		

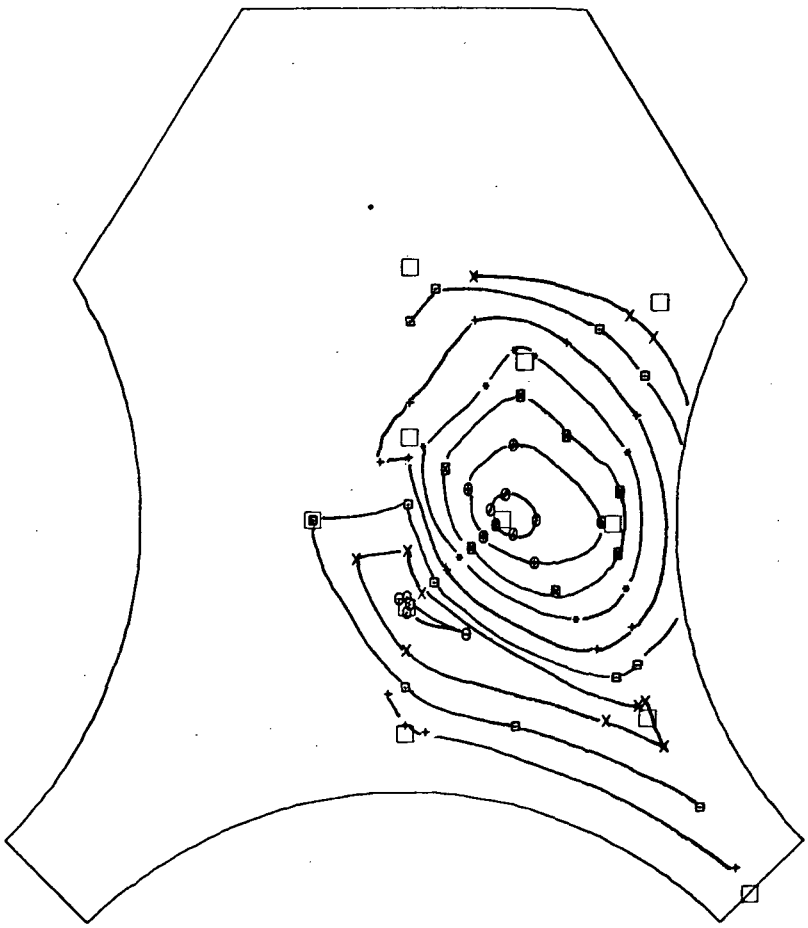
GIMBAL PATTERN 2A
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	3.0	B	5.5
X	3.5	●	6.0
⊡	4.0	●	6.5
+	4.5	S	7.0
•	5.0	A	7.5

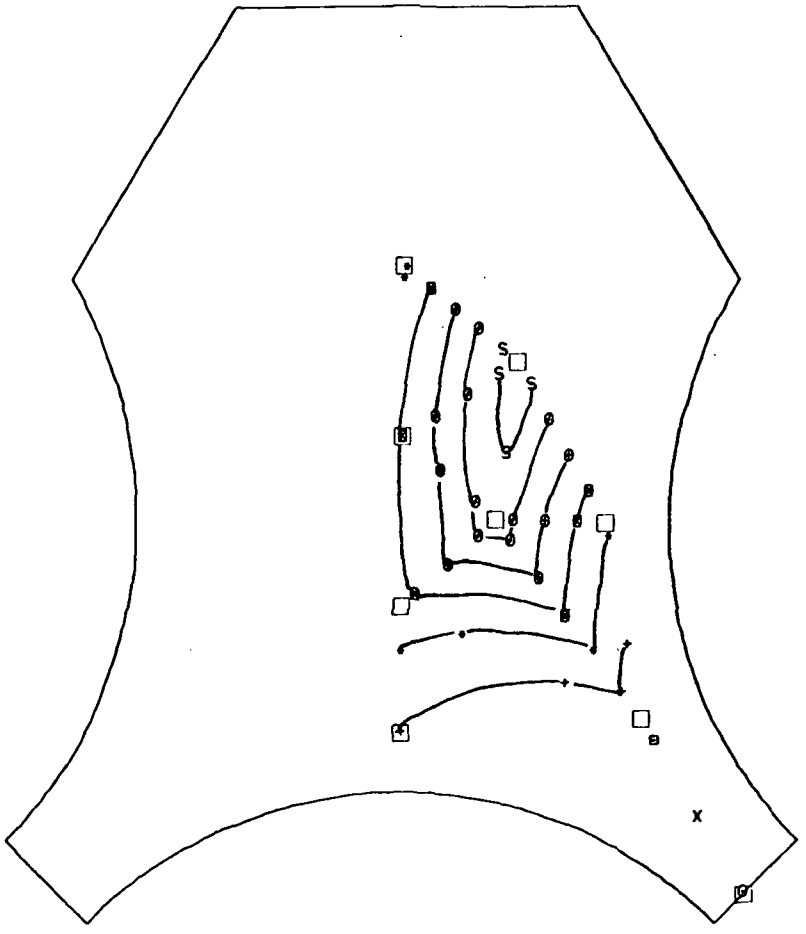
GIMBAL PATTERN 3C
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	5.0	■	10.0
X	6.0	●	11.0
⊡	7.0	◆	12.0
+	8.0		
•	9.0		

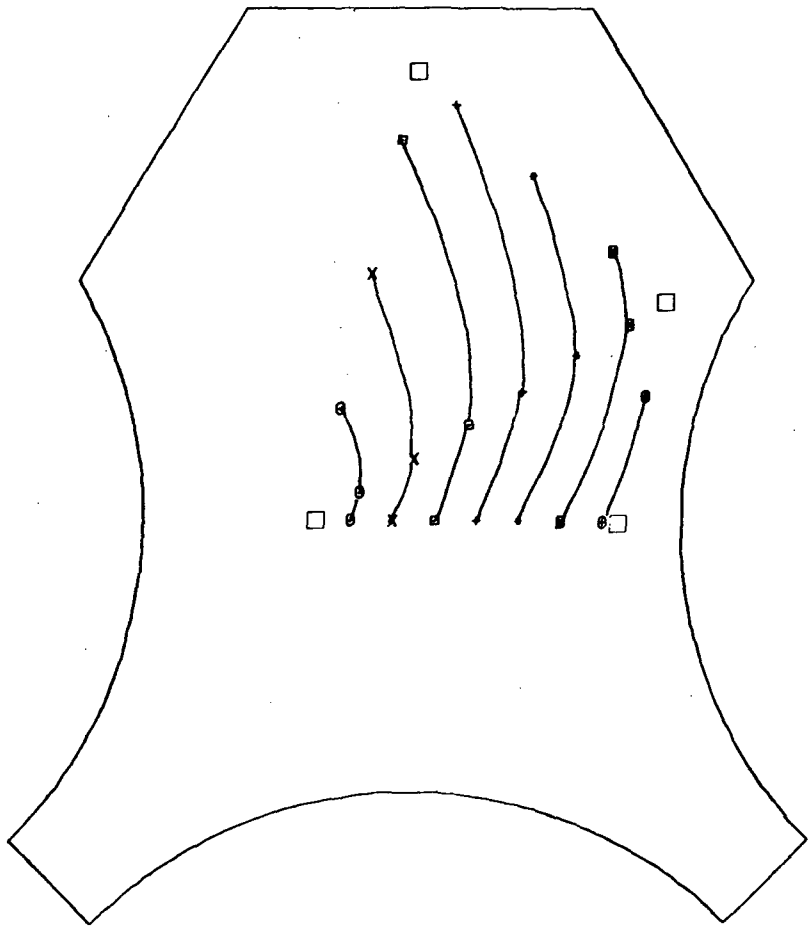
GIMBAL PATTERN 2
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	2.0	■	7.0
X	3.0	8	8.0
⊠	4.0	9	9.0
+	5.0	S	10.0
•	6.0		

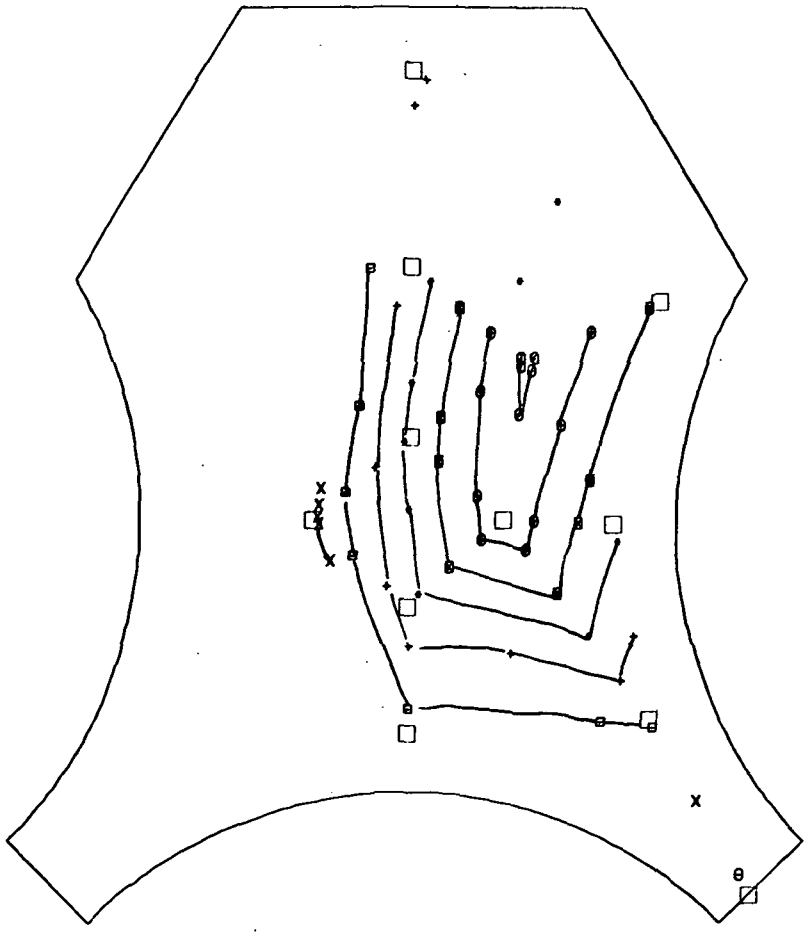
GIMBAL PATTERN 2
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	4.0	■	6.5
X	4.5	●	7.0
⊡	5.0		
+	5.5		
•	6.0		

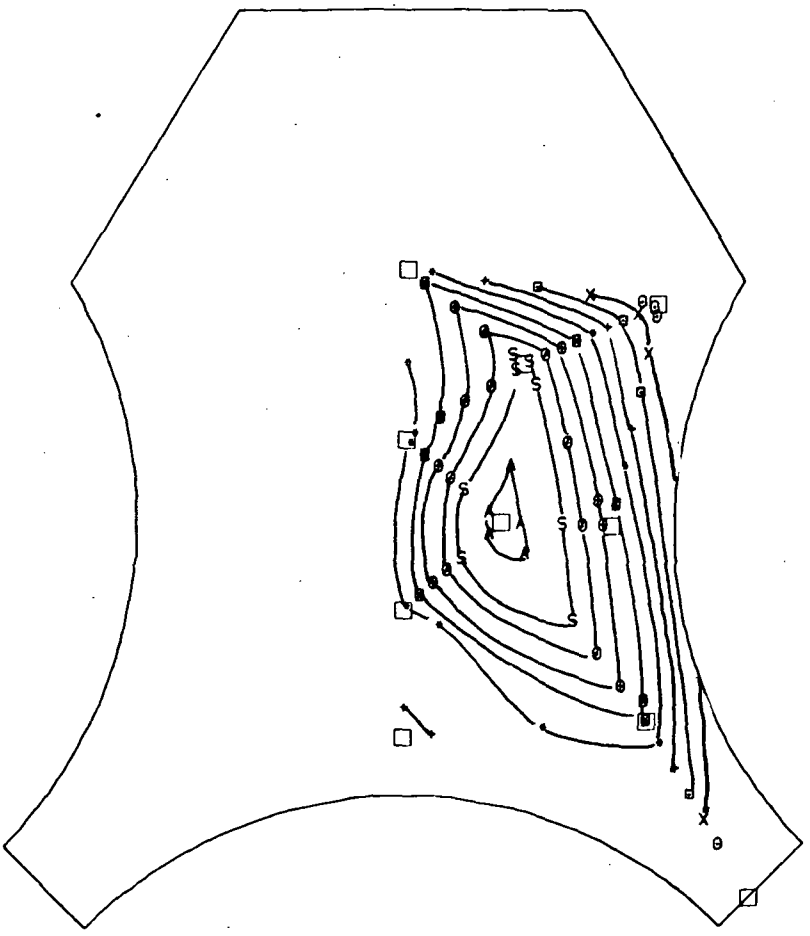
GIMBAL PATTERN 2
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE ON



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	2.0	■	7.0
X	3.0	●	8.0
⊡	4.0	⊕	9.0
+	5.0		
•	6.0		

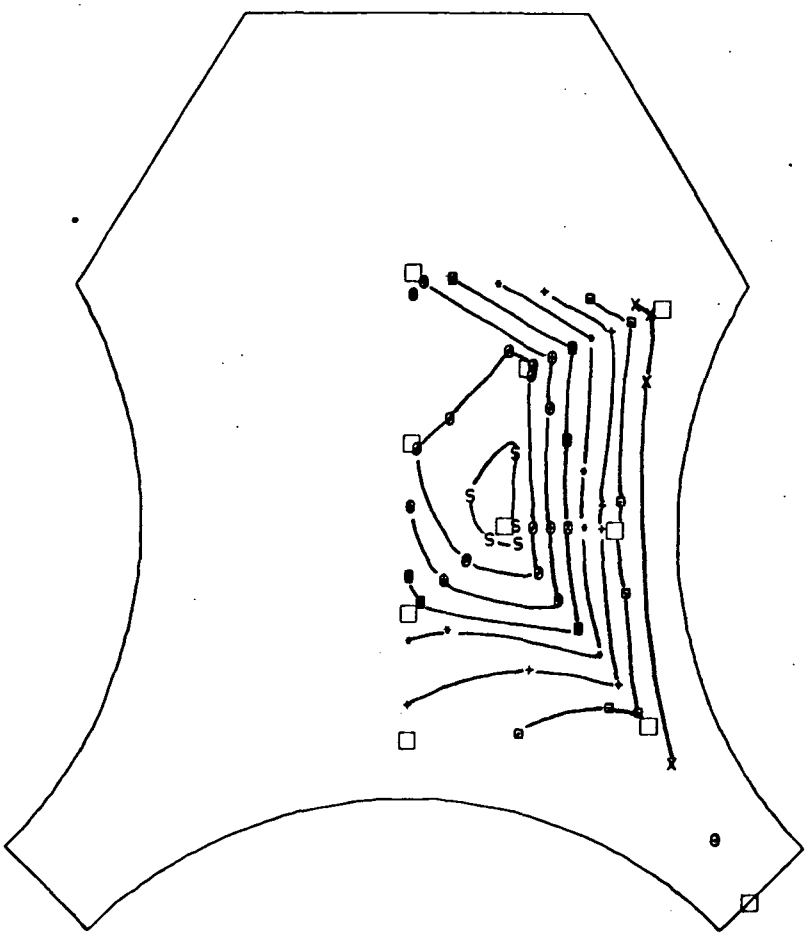
GIMBAL PATTERN 5
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	5.0	■	7.5
X	5.5	●	8.0
■	6.0	■	8.5
+	6.5	S	9.0
•	7.0	A	10.0

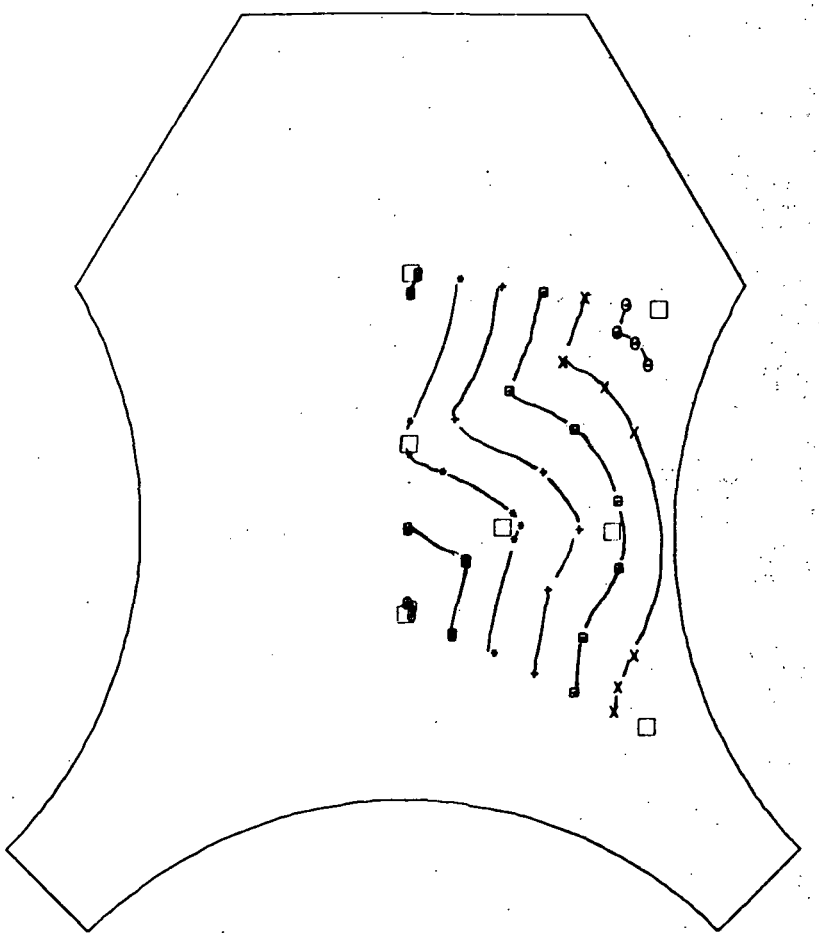
GIMBAL PATTERN 4
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	3.0	■	8.0
X	4.0	●	9.0
▣	5.0	◉	10.0
+	6.0	S	11.0
•	7.0		

GIMBAL PATTERN 4A
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF

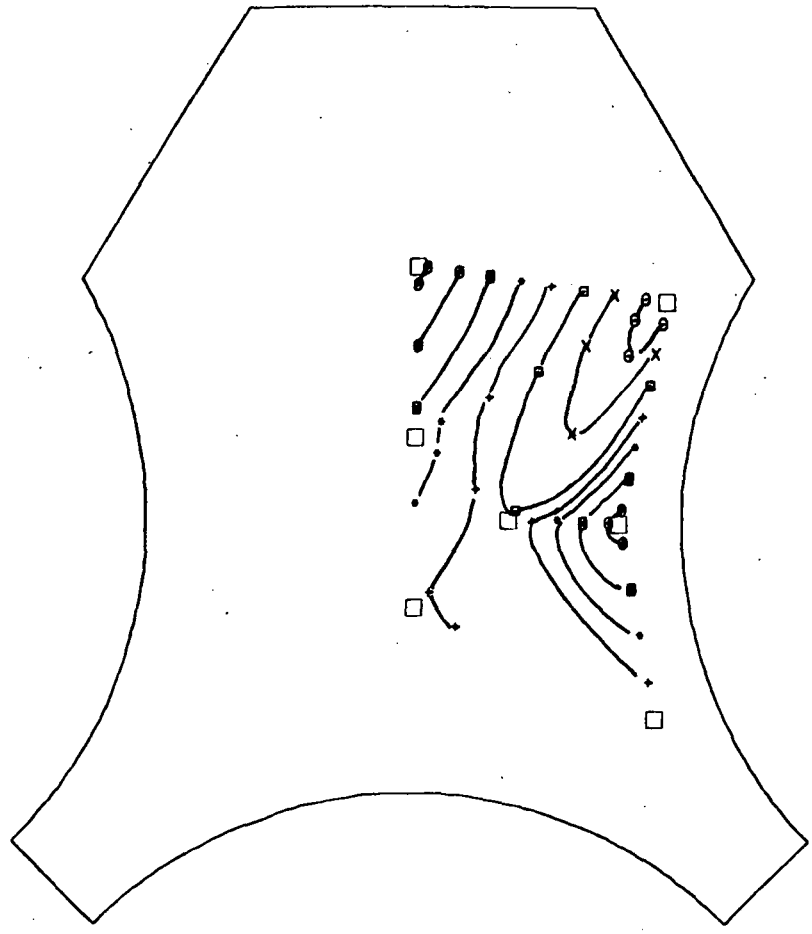


PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	2.0	■	4.5
X	2.5	●	5.0
⊠	3.0		
+	3.5		
•	4.0		

RUN SERIES 6, LOG 6.2 MEAN + 3 SIGMA

NO DEFLECTION
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



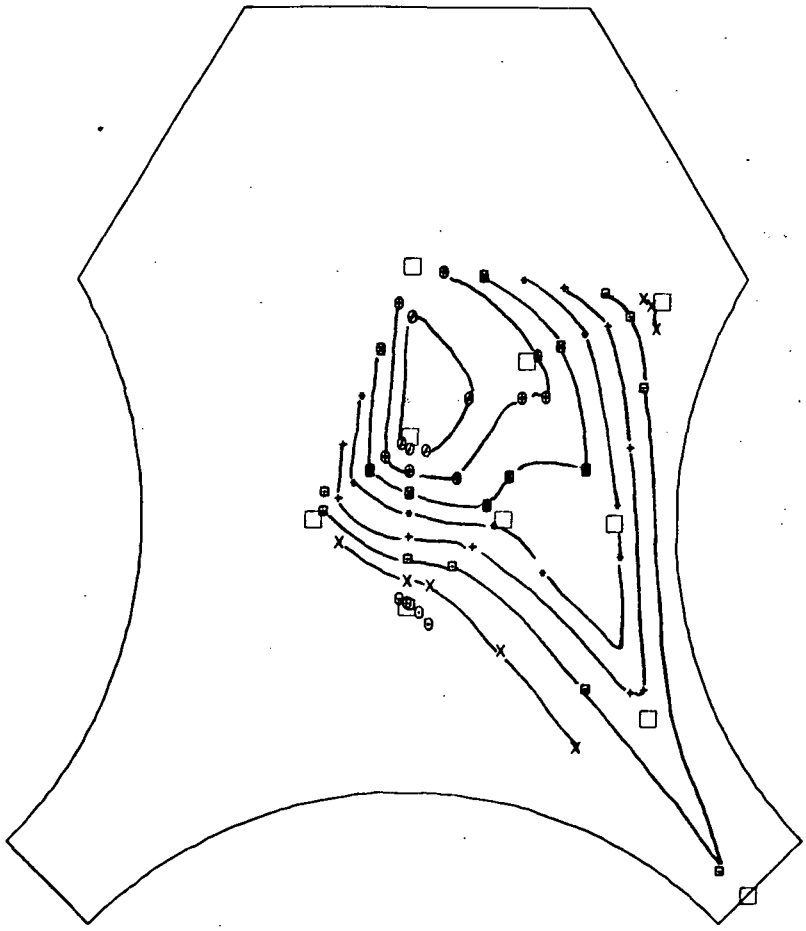
PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	1.5	■	4.0
X	2.0	●	4.5
⊞	2.5	●	5.0
+	3.0		
•	3.5		

RUN SERIES 7, LOG 7.1 MEAN + 3 SIGMA

NO DEFLECTION
θ/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF

S-IV TYPE HEAT SHIELD



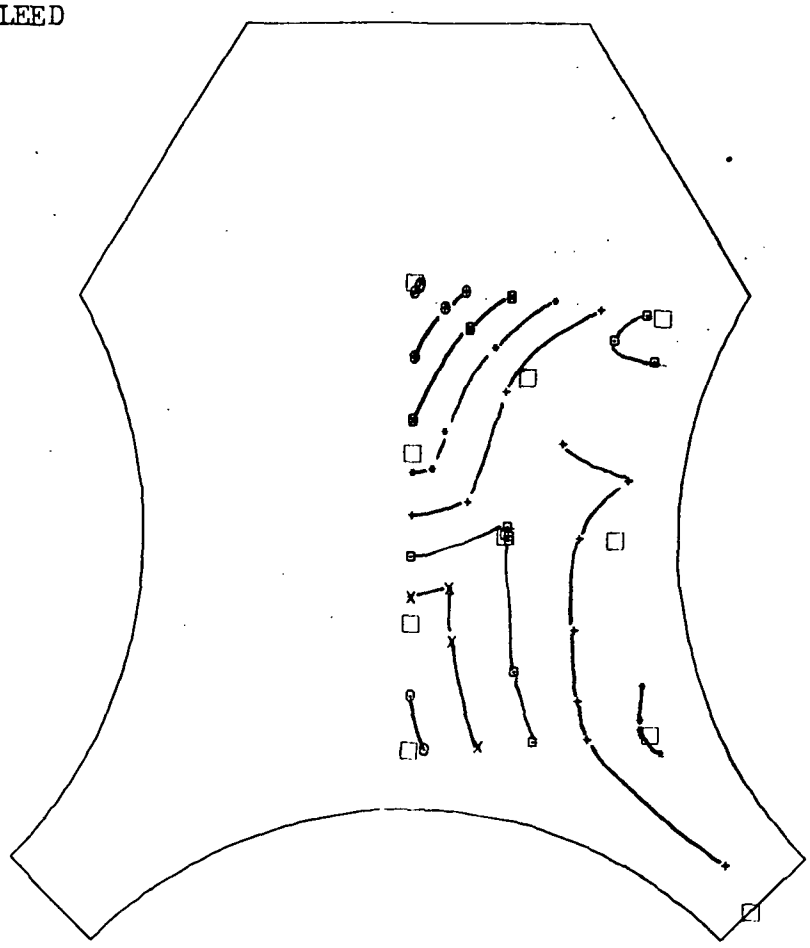
PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	2.0	■	4.5
X	2.5	●	5.0
▫	3.0	◆	5.5
+	3.5		
•	4.0		

RUN SERIES 9, LOG 9.1.1 MEAN + 3 SIGMA

NO DEFLECTION
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF

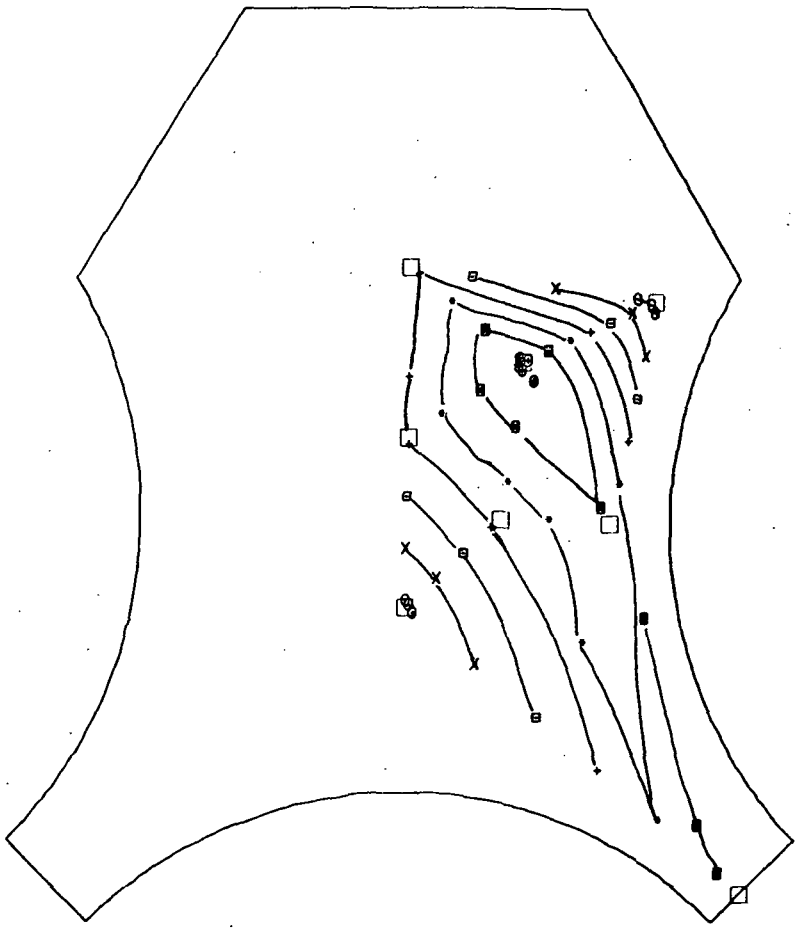
WITH BOUNDARY LAYER BLEED



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	1.5	■	4.0
X	2.0	●	4.5
▫	2.5	◘	5.0
+	3.0		
•	3.5		

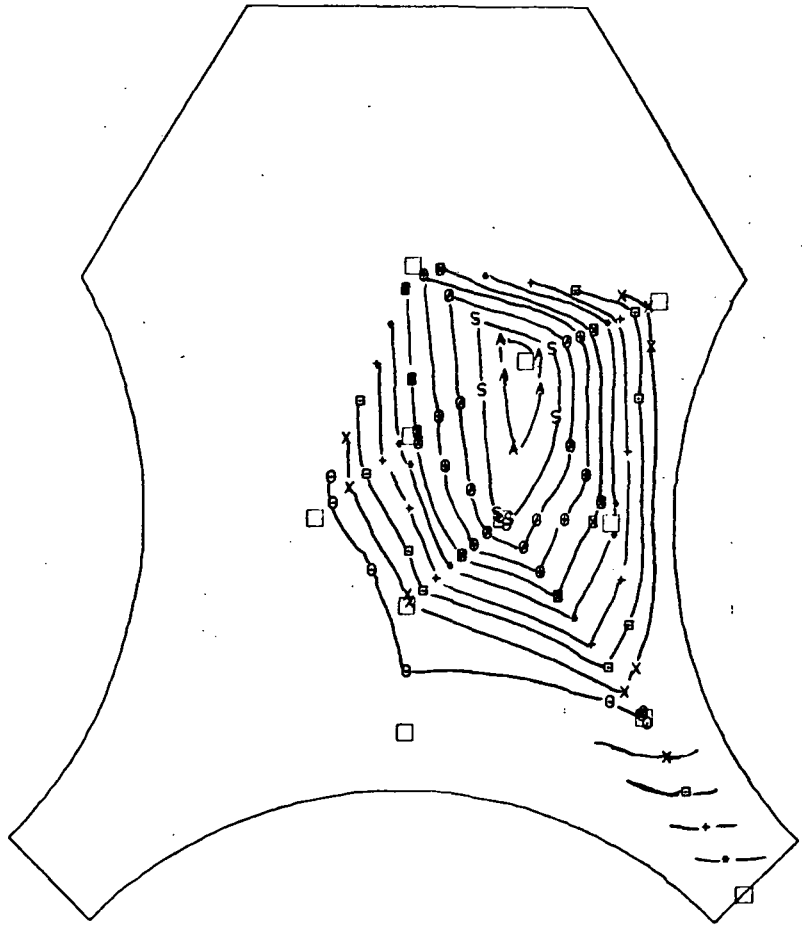
GIMBAL PATTERN 4A-a
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	5.0	■	15.0
X	7.0	●	17.0
⊡	9.0		
+	11.0		
•	13.0		

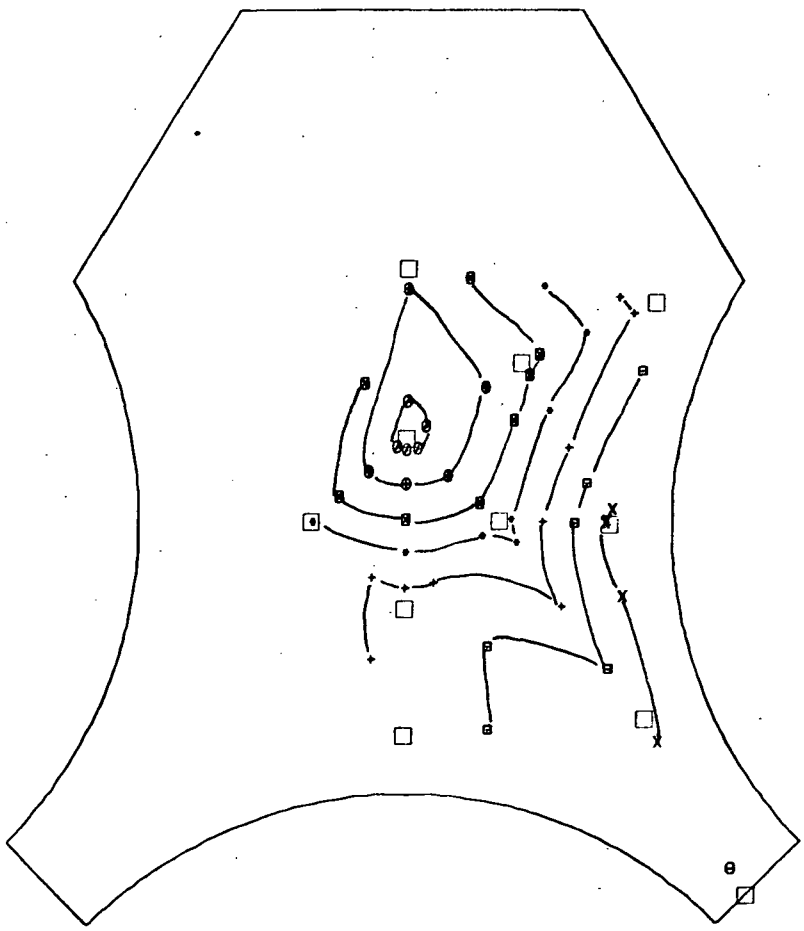
GIMBAL PATTERN 4A-a
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	3.0	■	8.0
X	4.0	●	9.0
⊟	5.0	◉	10.0
+	6.0	S	11.0
•	7.0	A	12.0

GIMBAL PATTERN 4A-b
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF

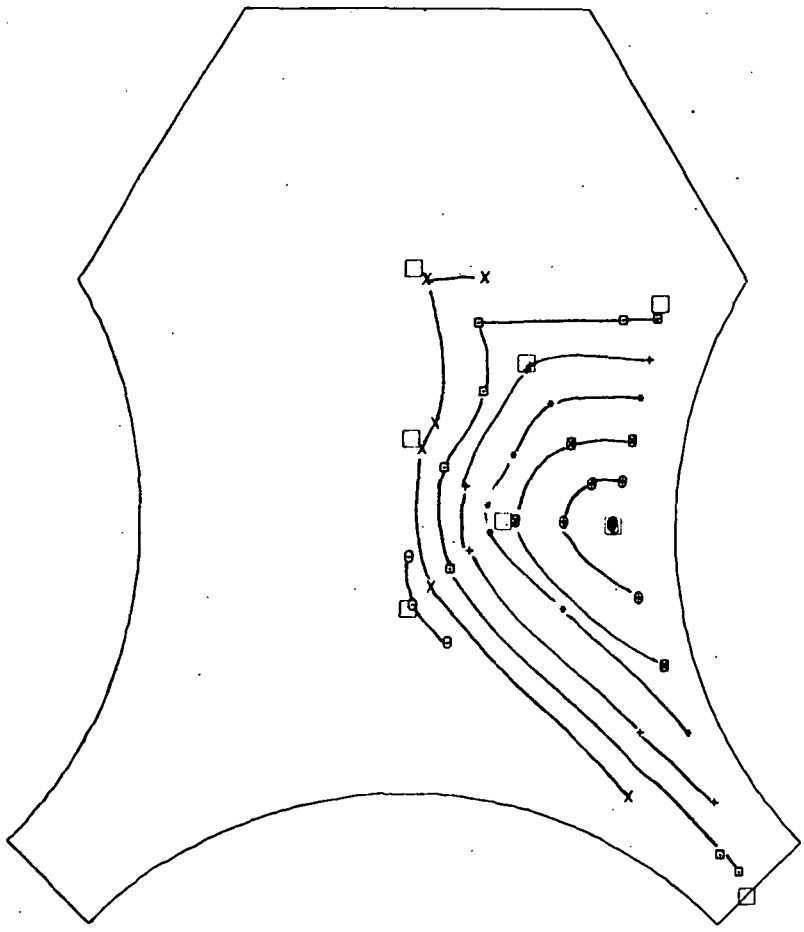


PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	1.0	■	6.0
X	2.0	●	7.0
⊡	3.0	⊕	8.0
+	4.0		
•	5.0		

RUN SERIES 13, LOG 13.1.1 MEAN + 3 SIGMA

GIMBAL PATTERN 7
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF

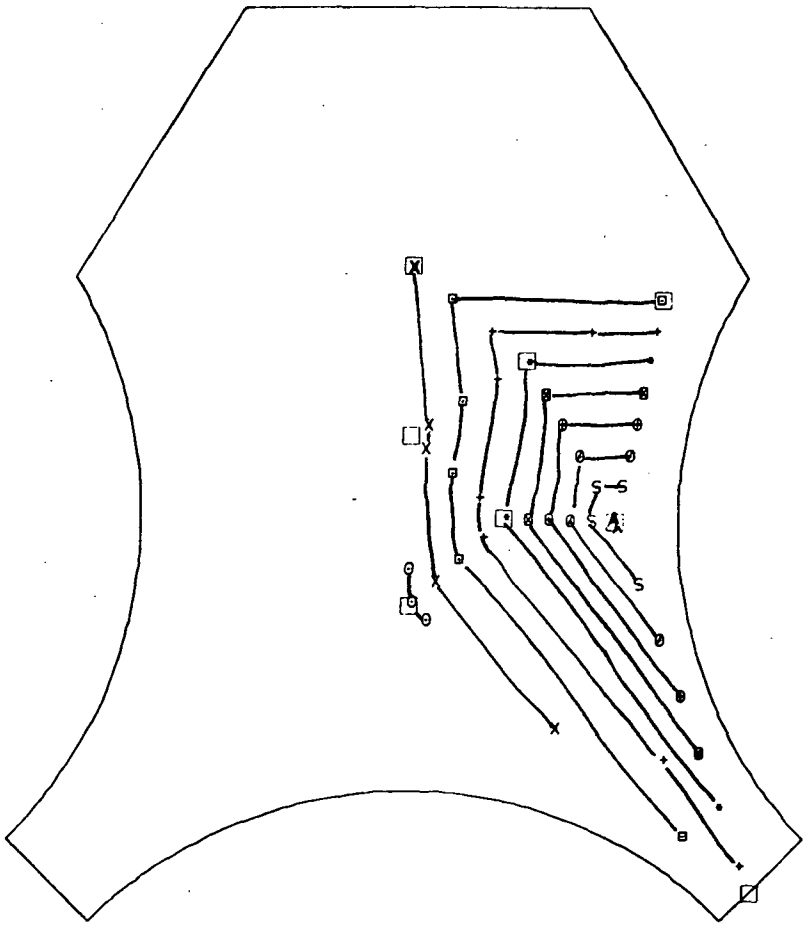


PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	4.0	8	14.0
X	6.0	0	16.0
0	8.0	0	18.0
+	10.0		
•	12.0		

RUN SERIES 13, LOG 13.1.1A MEAN + 3 SIGMA

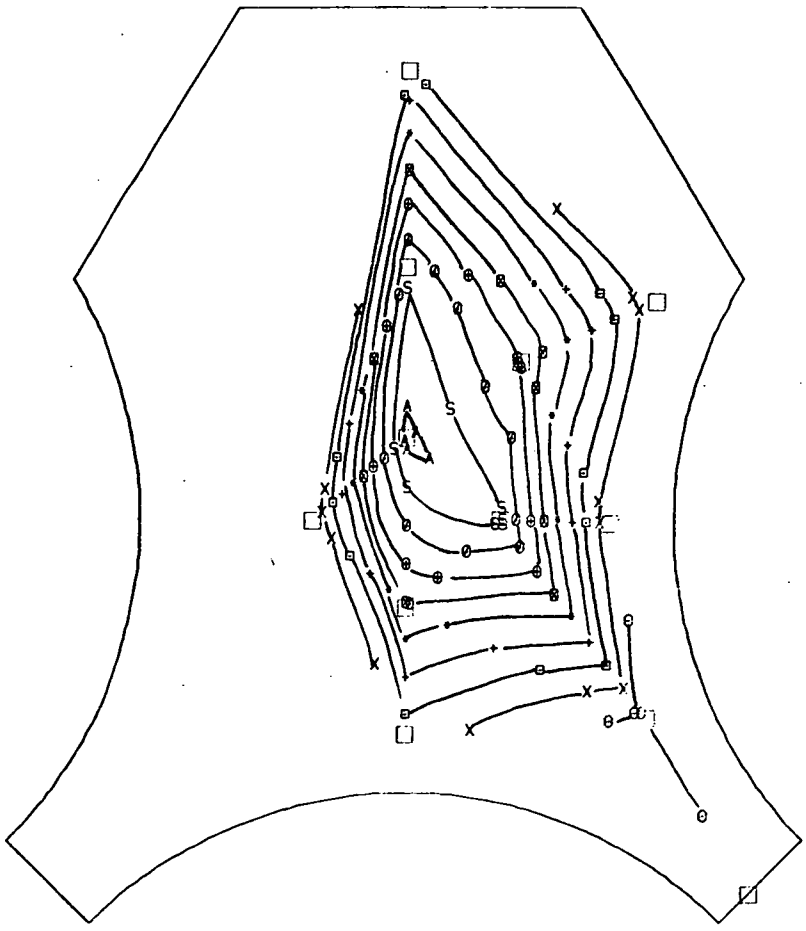
GIMBAL PATTERN 7
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	4.0	■	14.0
X	6.0	●	16.0
⊡	8.0	Ø	18.0
+	10.0	S	20.0
•	12.0	A	22.0

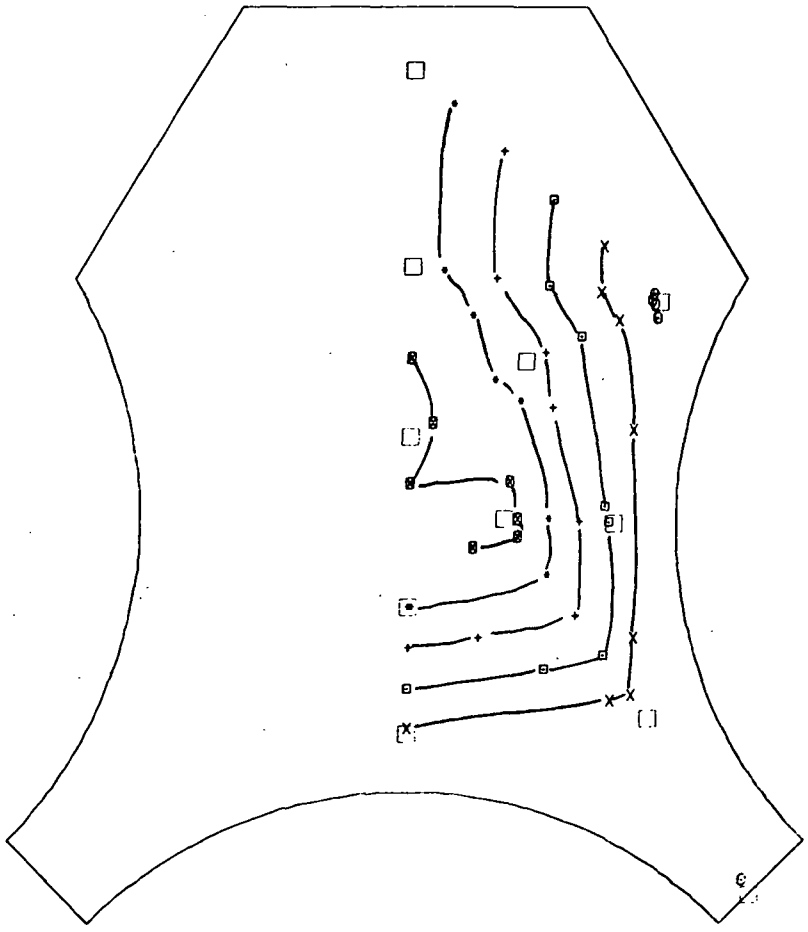
GIMBAL PATTERN 8
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	3.0	■	5.5
X	3.5	●	6.0
⊡	4.0	Ø	6.5
+	4.5	S	7.0
•	5.0	A	7.5

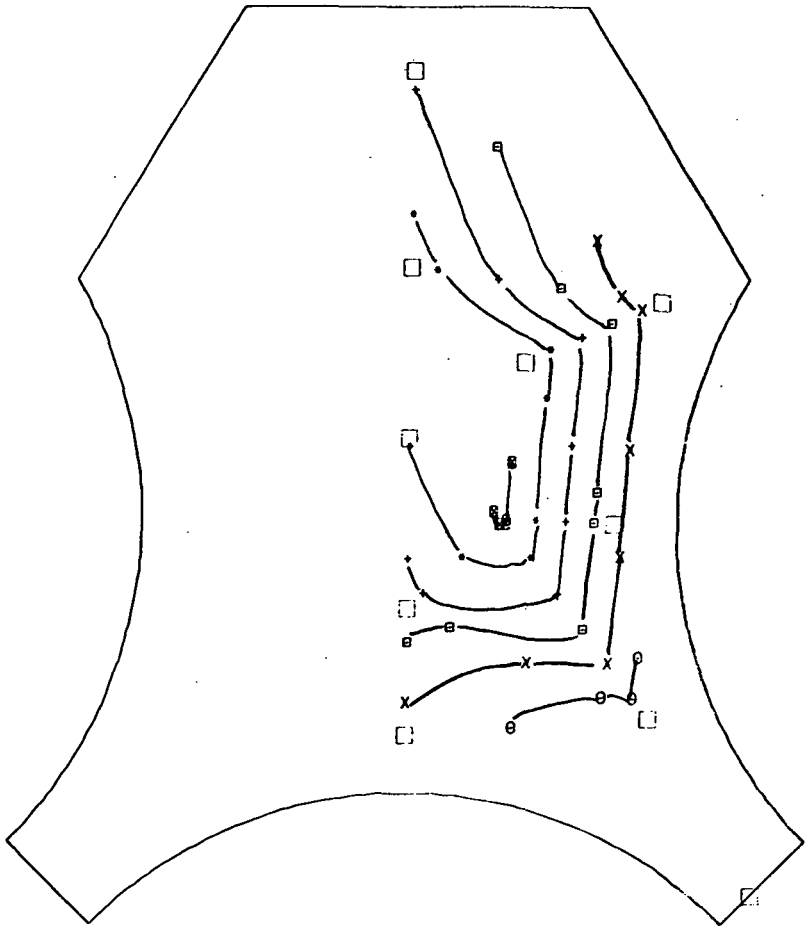
GIMBAL PATTERN 9
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	3.0	8	8.0
X	4.0		
⊡	5.0		
+	6.0		
•	7.0		

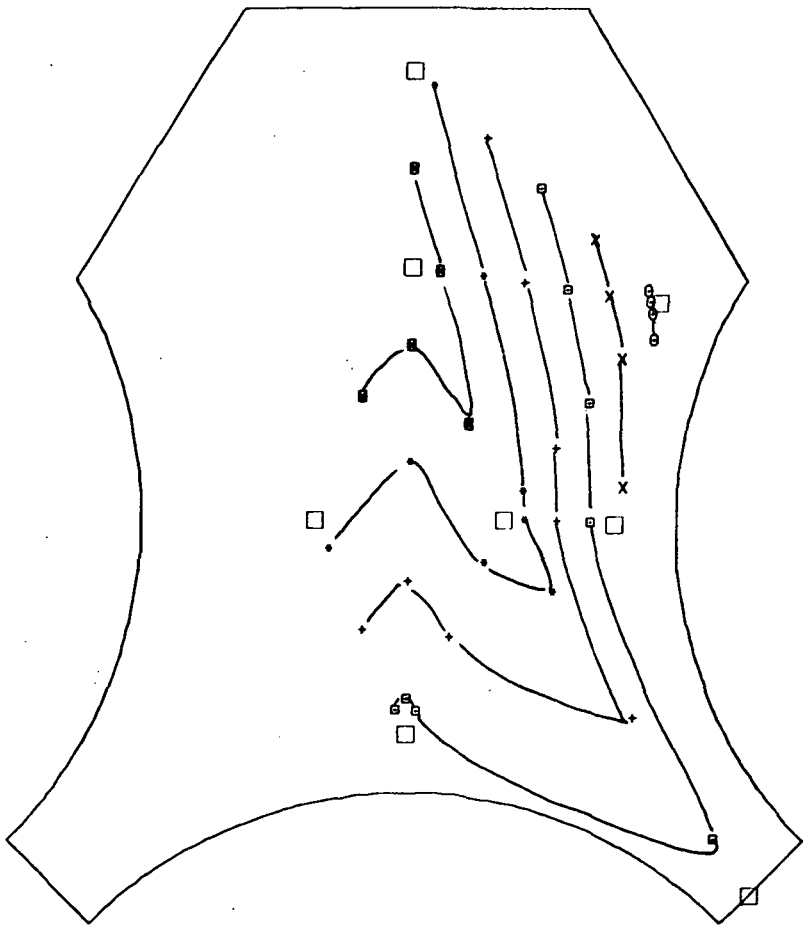
GIMBAL PATTERN 9A
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	ODOT	SYMBOL	ODOT
θ	3.0	■	8.0
X	4.0		
⊡	5.0		
+	6.0		
•	7.0		

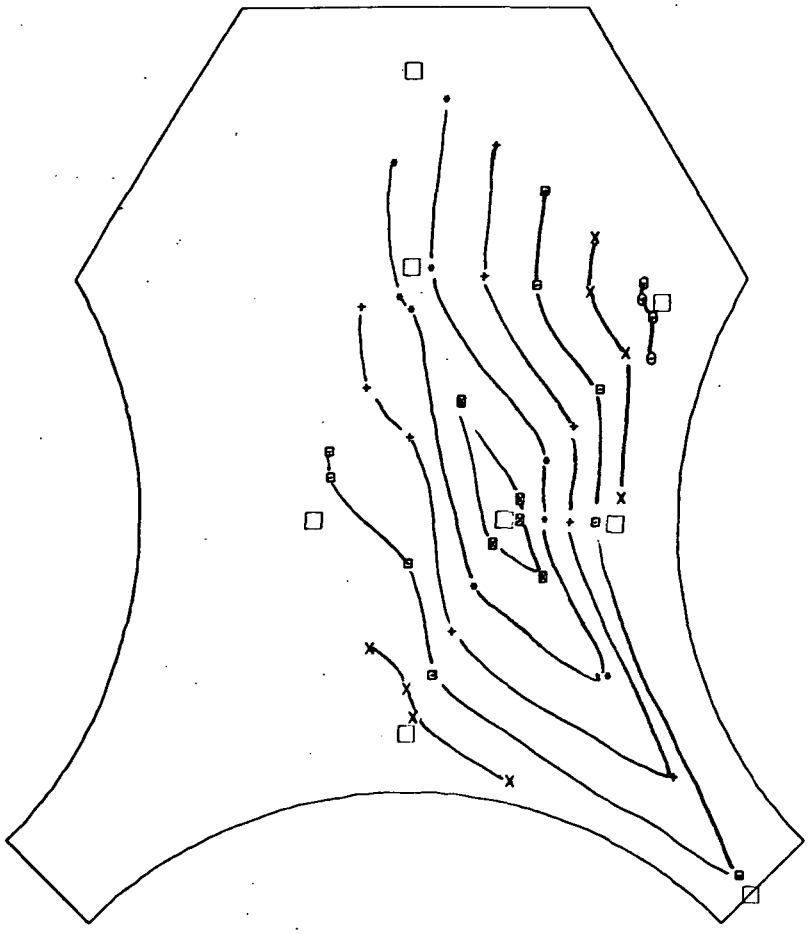
GIMBAL PATTERN 9B
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE ON



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	3.0	8	8.0
X	4.0		
8	5.0		
+	6.0		
•	7.0		

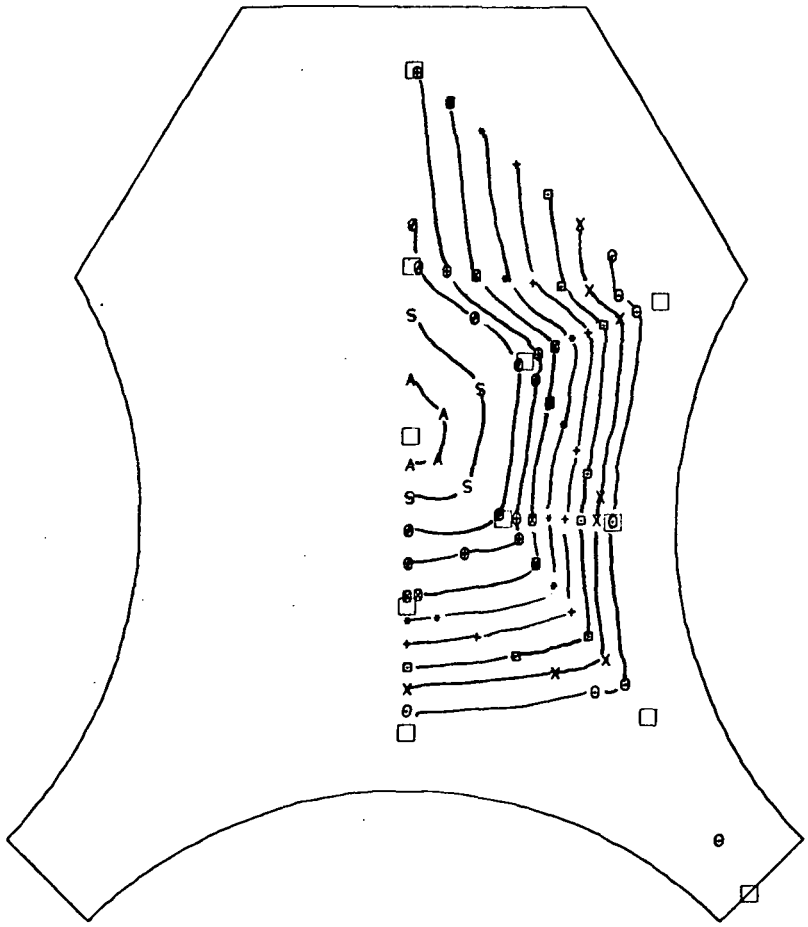
GIMBAL PATTERN 9B
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	3.0	■	8.0
X	4.0		
⊟	5.0		
+	6.0		
•	7.0		

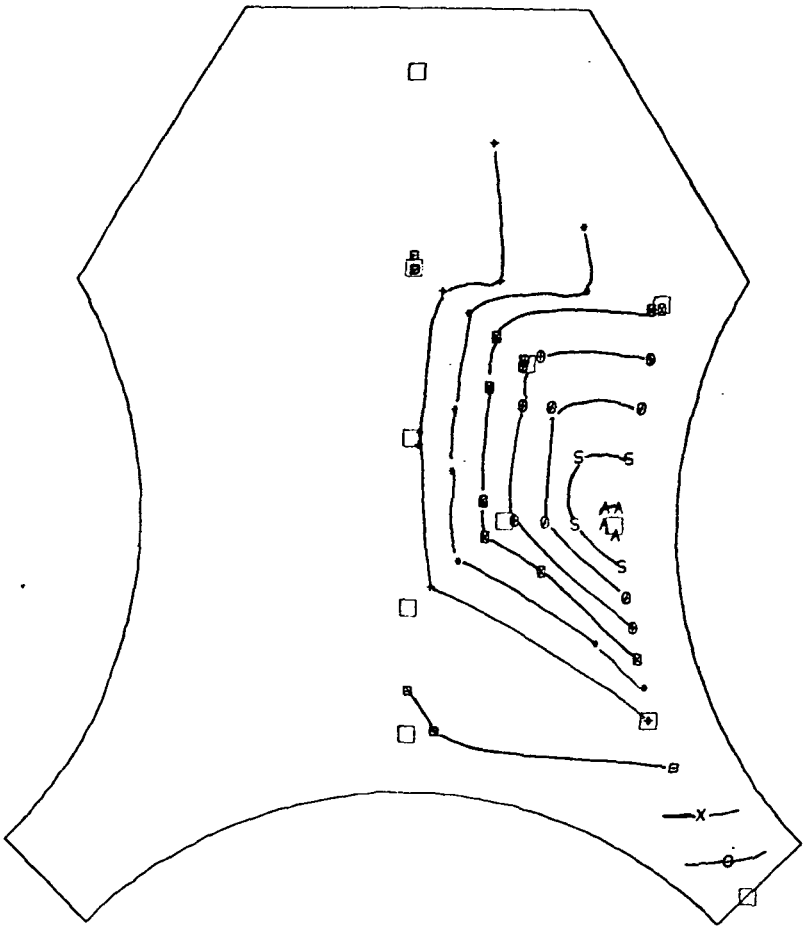
GIMBAL PATTERN 9B
O/F = 5.0
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	4.0	■	6.5
X	4.5	●	7.0
⊡	5.0	●	7.5
+	5.5	S	8.0
•	6.0	A	8.5

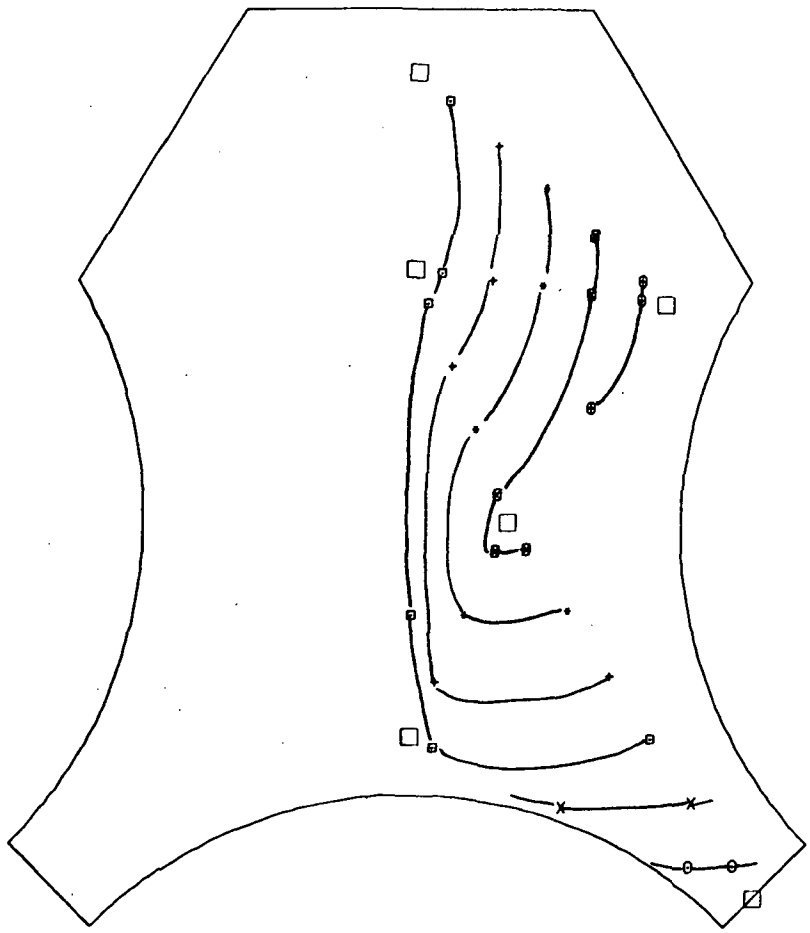
GIMBAL PATTERN 2B
O/F = 5.5
Pc = 632 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	3.0	B	8.0
X	4.0	9	9.0
ø	5.0	0	10.0
+	6.0	S	11.0
•	7.0	A	12.0

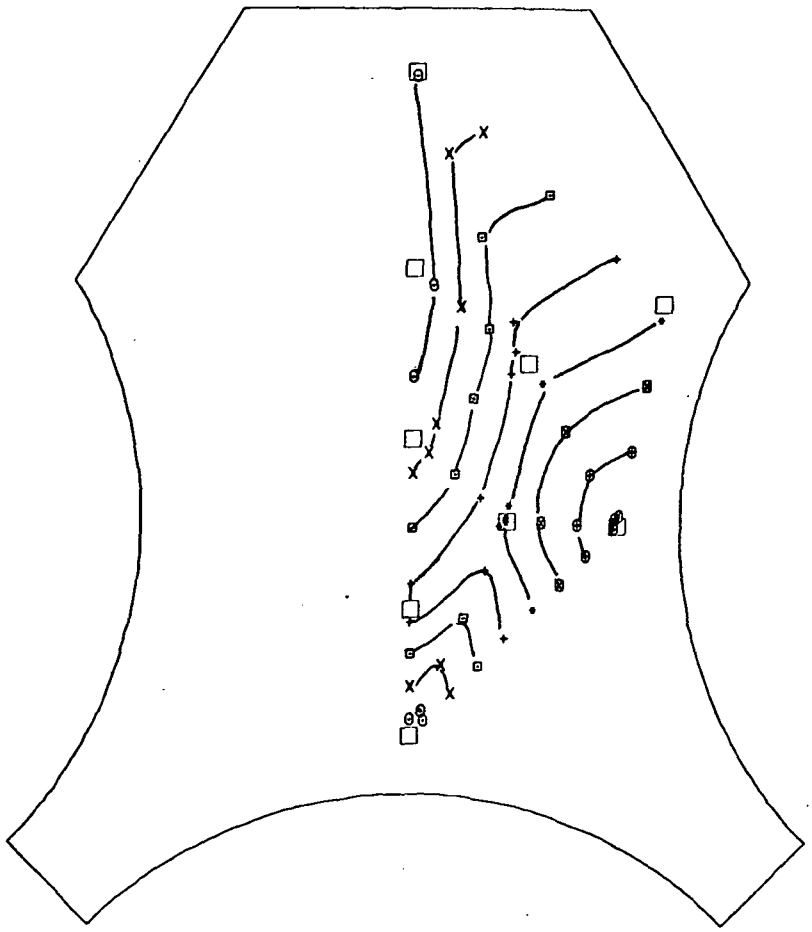
GIMBAL PATTERN 2B- MOD
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	3.0	■	8.0
X	4.0	●	9.0
■	5.0		
+	6.0		
•	7.0		

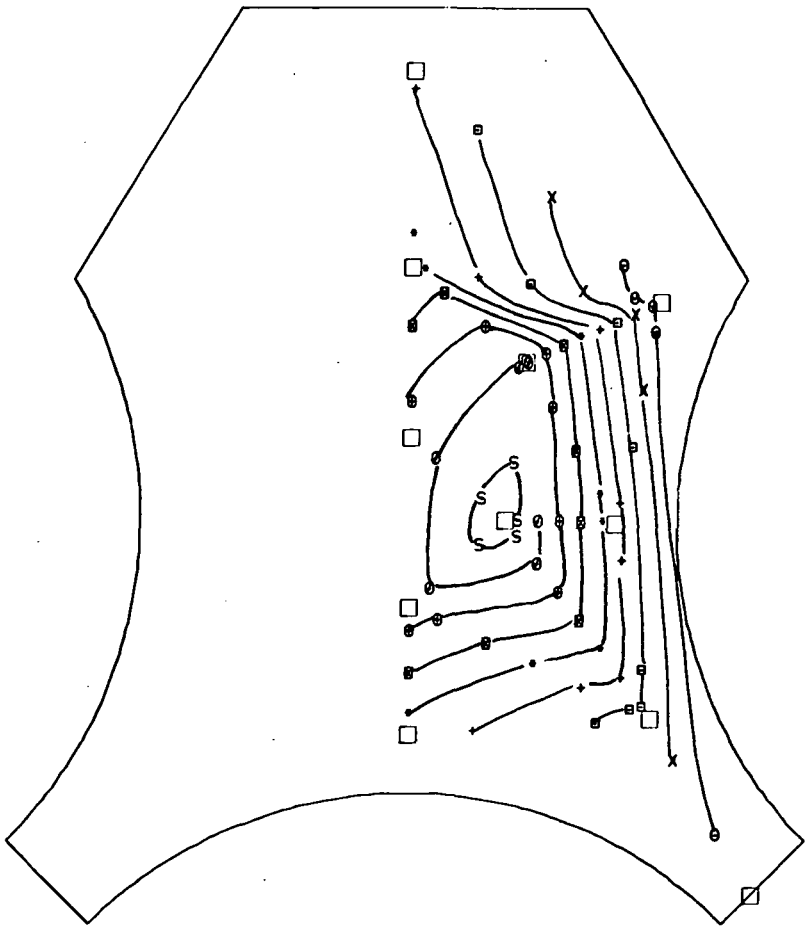
GIMBAL PATTERN 2B
O/F = 5.5
Pc=632 PSIA
INTERSTAGE ON



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
θ	5.0	■	10.0
X	6.0	●	11.0
⊕	7.0	⊕	12.0
+	8.0		
•	9.0		

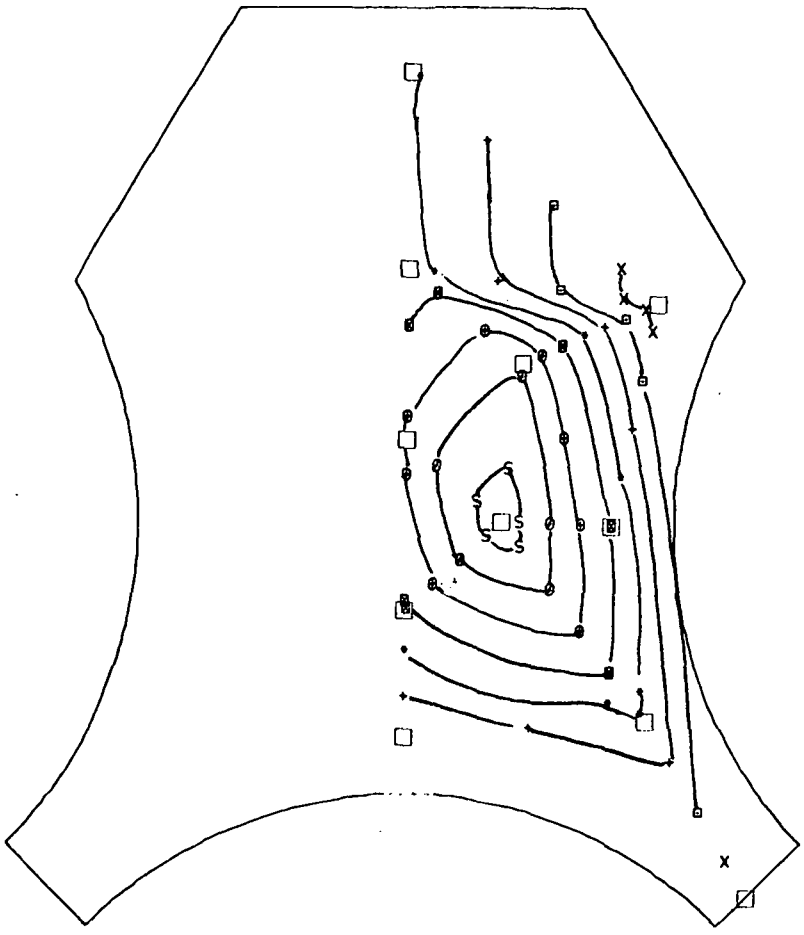
GIMBAL PATTERN 6A
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	4.0	■	9.0
X	5.0	●	10.0
⊡	6.0	⊕	11.0
+	7.0	S	12.0
•	8.0		

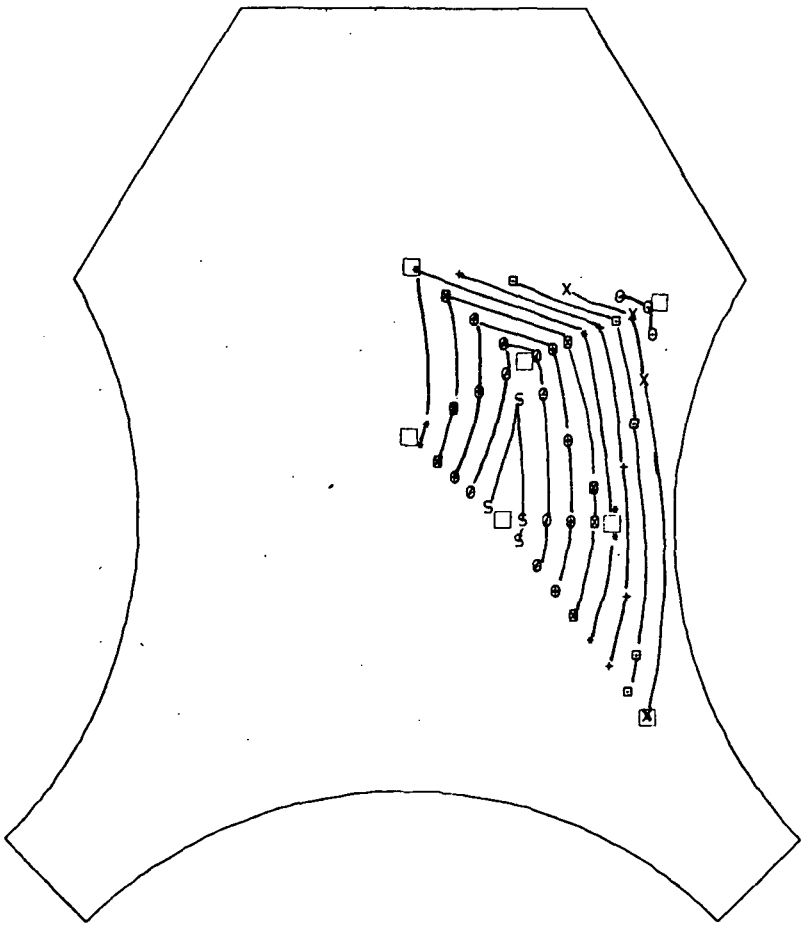
GIMBAL PATTERN 6A
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE ON



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	4.0	8	9.0
X	5.0	●	10.0
⊡	6.0	@	11.0
+	7.0	S	12.0
•	8.0		

GIMBAL PATTERN 6A
O/F = 5.5
Pc = 715 PSIA
INTERSTAGE OFF



PLOTTING SYMBOL KEY

SYMBOL	QDOT	SYMBOL	QDOT
0	5.0	■	10.0
X	6.0	●	11.0
□	7.0	◍	12.0
+	8.0	S	13.0
•	9.0		

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